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|------------|-----|-----|-----|------------|------------|-----|-----|-----|------------|------------|-----|-----|-----|-----|-------------|------|
| Lys 895 | Leu | Gly | Gly | Gln | Arg 900 | Tyr | Arg | Ser | Gly | Arg 905 | Arg | Lys | Ser | Ala | Gly 910 | |
| aac | atc | cca | ctg | tcc | ccg | ctg | gcc | cgg | acg | ccc | tct | cca | acc | ccg | caa | 2964 |
| Asn | Ile | Pro | Leu | Ser 915 | Pro | Leu | Ala | Arg | Thr 920 | Pro | Ser | Pro | Thr | Pro | Gln 925 | |
| ccc | acc | tcc | ccg | cag | cgg | tca | cca | tcc | cct | ctt | ctg | gga | cac | tca | ctg | 3012 |
| Pro | Thr | Ser | Pro | Gln 930 | Arg | Ser | Pro | Ser | Pro | Leu | Leu | Gly | His | Ser | Leu 940 | |
| ggc | aat | tcc | aag | atc | gcg | caa | gcc | ttt | ccc | agc | aag | atg | cac | tcc | ccg | 3060 |
| Gly | Asn | Ser | Lys | Ile | Ala | Gln | Ala | Phe | Pro | Ser | Lys | Met | His | Ser | Pro 955 | |
| ccc | acc | atc | gtc | aga | cac | atc | gtg | agg | ccc | aag | agt | gcg | gag | ccc | ccc | 3108 |
| Pro | Thr | Ile | Val | Arg | His | Ile | Val | Arg | Pro | Lys | Ser | Ala | Glu | Pro | Pro 970 | |
| agg | tcc | ccg | ctg | ctc | aag | cgc | gtg | cag | tcc | gag | gag | aag | ctg | tcg | ccc | 3156 |
| Arg | Ser | Pro | Leu | Leu | Lys | Arg | Val | Gln | Ser | Glu | Glu | Lys | Leu | Ser | Pro 990 | |
| tct | tac | ggc | agt | gac | aag | aag | cac | ctg | tgc | tcc | cgc | aag | cac | agc | ctg | 3204 |
| Ser | Tyr | Gly | Ser | Asp | Lys | Lys | His | Leu | Cys | Ser | Arg | Lys | His | Ser | Leu 1005 | |
| gag | gtg | acc | caa | gag | gag | gtg | cag | cgg | gag | cag | tcc | cag | cgg | gag | gcg | 3252 |
| Glu | Val | Thr | Gln | Glu | Glu | Val | Gln | Arg | Glu | Gln | Ser | Gln | Arg | Glu | Ala 1020 | |
| ccg | ctg | cag | agc | ctg | gat | gag | aac | gtg | tgc | gac | gtg | ccg | ccg | ctc | agc | 3300 |
| Pro | Leu | Gln | Ser | Leu | Asp | Glu | Asn | Val | Cys | Asp | Val | Pro | Pro | Leu | Ser 1035 | |
| cgc | gcc | cgg | cca | gtg | gag | caa | ggc | tgc | ctg | aaa | cgc | cca | gtc | tcc | cgg | 3348 |
| Arg | Ala | Arg | Pro | Val | Glu | Gln | Gly | Cys | Leu | Lys | Arg | Pro | Val | Ser | Arg 1050 | |
| aag | gtg | ggc | cgc | cag | gag | tct | gtg | gac | gac | ctg | gac | cgc | gac | aag | ctg | 3396 |
| Lys | Val | Gly | Arg | Gln | Glu | Ser | Val | Asp | Asp | Leu | Asp | Arg | Asp | Lys | Leu 1070 | |
| aag | gcc | aag | gtg | gtg | gtg | aag | aaa | gca | gac | ggc | ttc | cca | gag | aaa | cag | 3444 |
| Lys | Ala | Lys | Val | Val | Val | Lys | Lys | Ala | Asp | Gly | Phe | Pro | Glu | Lys | Gln 1085 | |
| gaa | tcc | cac | cag | aaa | tcc | cat | gga | ccc | ggg | agt | gat | ttg | gaa | aac | ttt | 3492 |
| Glu | Ser | His | Gln | Lys | Ser | His | Gly | Pro | Gly | Ser | Asp | Leu | Glu | Asn | Phe 1100 | |
| gct | ctg | ttt | aag | ctg | gaa | gag | aga | gag | aag | aaa | gtc | tat | ccg | aag | gct | 3540 |
| Ala | Leu | Phe | Lys | Leu | Glu | Glu | Arg | Glu | Lys | Lys | Val | Tyr | Pro | Lys | Ala 1115 | |
| gtg | gaa | agg | tca | agt | act | ttt | gaa | aac | aaa | gcg | tct | atg | cag | gag | gcg | 3588 |
| Val | Glu | Arg | Ser | Ser | Thr | Phe | Glu | Asn | Lys | Ala | Ser | Met | Gln | Glu | Ala 1130 | |
| cca | ccg | ctg | ggc | agc | ctg | ctg | aag | gat | gct | ctt | cac | aag | cag | gcc | agc | 3636 |
| Pro | Pro | Leu | Gly | Ser | Leu | Leu | Lys | Asp | Ala | Leu | His | Lys | Gln | Ala | Ser 1150 | |
| gtg | cgc | gcc | agc | gag | ggc | gcg | atg | tcg | gat | ggc | ccg | gtg | cct | gcg | gag | 3684 |

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|---|------|
| Val Arg Ala Ser Glu Gly Ala Met Ser Asp Gly Pro Val Pro Ala Glu | |
| 1155 1160 1165 | |
| cac cgc cag ggt ggc ggg gac ttc aga cgg gcc ccc gct cct ggc acc | 3732 |
| His Arg Gln Gly Gly Gly Asp Phe Arg Arg Ala Pro Ala Pro Gly Thr | |
| 1170 1175 1180 | |
| ctc cag gat ggt ctc tgc cac tcc ctc gac agg ggc atc tct ggg aag | 3780 |
| Leu Gln Asp Gly Leu Cys His Ser Leu Asp Arg Gly Ile Ser Gly Lys | |
| 1185 1190 1195 | |
| ggg gaa ggc acg gag aag tcc tcc cag gcc aag gag ctt ctc cga tgt | 3828 |
| Gly Glu Gly Thr Glu Lys Ser Ser Gln Ala Lys Glu Leu Leu Arg Cys | |
| 1200 1205 1210 | |
| gaa aag tta gac agc aag ctg gcc aac atc gat tac ctc cga aag aaa | 3876 |
| Glu Lys Leu Asp Ser Lys Leu Ala Asn Ile Asp Tyr Leu Arg Lys Lys | |
| 1215 1220 1225 1230 | |
| atg tca ctt gag gac aaa gag gac aac ctc tgc cct gtg ctg aag ccc | 3924 |
| Met Ser Leu Glu Asp Lys Glu Asp Asn Leu Cys Pro Val Leu Lys Pro | |
| 1235 1240 1245 | |
| aag atg aca gct ggc tcc cac gaa tgc ctg cca ggg aac cca gtc cga | 3972 |
| Lys Met Thr Ala Gly Ser His Glu Cys Leu Pro Gly Asn Pro Val Arg | |
| 1250 1255 1260 | |
| ccc acg ggt ggg cag cag gag ccc ccg ccg gct tct gag agc cga gct | 4020 |
| Pro Thr Gly Gly Gln Gln Glu Pro Pro Pro Ala Ser Glu Ser Arg Ala | |
| 1265 1270 1275 | |
| ttt gtc agc agc acc cat gca gct cag atg agt gcc gtc tct ttt gtt | 4068 |
| Phe Val Ser Ser Thr His Ala Ala Gln Met Ser Ala Val Ser Phe Val | |
| 1280 1285 1290 | |
| ccc ctc aag gcc tta aca ggc cgg gtg gac agt gga acg gag aag cct | 4116 |
| Pro Leu Lys Ala Leu Thr Gly Arg Val Asp Ser Gly Thr Glu Lys Pro | |
| 1295 1300 1305 1310 | |
| ggc ttg gtt gct cct gag tcc cct gtt agg aag agc ccc tcc gag tat | 4164 |
| Gly Leu Val Ala Pro Glu Ser Pro Val Arg Lys Ser Pro Ser Glu Tyr | |
| 1315 1320 1325 | |
| aag ctg gaa ggt agg tct gtc tca tgc ctg gag ccg atc gag ggc act | 4212 |
| Lys Leu Glu Gly Arg Ser Val Ser Cys Leu Glu Pro Ile Glu Gly Thr | |
| 1330 1335 1340 | |
| ctg gac att gct ctc ctg tcc gga cct cag gcc tcc aag aca gaa ctg | 4260 |
| Leu Asp Ile Ala Leu Leu Ser Gly Pro Gln Ala Ser Lys Thr Glu Leu | |
| 1345 1350 1355 | |
| cct tcc cca gag tct gca cag agc ccc agc cca agt ggt gac gtg agg | 4308 |
| Pro Ser Pro Glu Ser Ala Gln Ser Pro Ser Pro Ser Gly Asp Val Arg | |
| 1360 1365 1370 | |
| gcc tct gtg cca cca gtt ctc ccc agc agc agt ggg aaa aag aac gat | 4356 |
| Ala Ser Val Pro Pro Val Leu Pro Ser Ser Ser Gly Lys Lys Asn Asp | |
| 1375 1380 1385 1390 | |
| acc acc agt gca aga gag ctt tct cct tcc agc tta aag atg aat aaa | 4404 |
| Thr Thr Ser Ala Arg Glu Leu Ser Pro Ser Ser Leu Lys Met Asn Lys | |
| 1395 1400 1405 | |
| tcc tac ctg ctg gag cct tgg ttc ctg ccc ccc agc cga ggt ctc cag | 4452 |

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|---|------|
| Ser Tyr Leu Leu Glu Pro Trp Phe Leu Pro Pro Ser Arg Gly Leu Gln | |
| 1410 1415 1420 | |
| aat tca cca gca gtt tcc ctg cct gac cca gag ttc aag agg gac agg | 4500 |
| Asn Ser Pro Ala Val Ser Leu Pro Asp Pro Glu Phe Lys Arg Asp Arg | |
| 1425 1430 1435 | |
| aaa ggt ccc cat cct act gcc agg agc cct gga aca gtc atg gaa agc | 4548 |
| Lys Gly Pro His Pro Thr Ala Arg Ser Pro Gly Thr Val Met Glu Ser | |
| 1440 1445 1450 | |
| aat ccc caa cag aga gag ggc agc tcc cct aaa cac caa gac cac acc | 4596 |
| Asn Pro Gln Gln Arg Glu Gly Ser Ser Pro Lys His Gln Asp His Thr | |
| 1455 1460 1465 1470 | |
| act gac ccc aag ctt ctg acc tgc ctg ggg cag aac ctc cac agc cct | 4644 |
| Thr Asp Pro Lys Leu Leu Thr Cys Leu Gly Gln Asn Leu His Ser Pro | |
| 1475 1480 1485 | |
| gac ctg gcc agg cca cgc tgc ccg ctc cca cct gaa gct tcc ccc tca | 4692 |
| Asp Leu Ala Arg Pro Arg Cys Pro Leu Pro Pro Glu Ala Ser Pro Ser | |
| 1490 1495 1500 | |
| agg gag aag cca ggc ctg agg gaa tcg tct gaa aga ggc cct ccc aca | 4740 |
| Arg Glu Lys Pro Gly Leu Arg Glu Ser Ser Glu Arg Gly Pro Pro Thr | |
| 1505 1510 1515 | |
| gcc aga agc gag cgc tct gct gcg agg gct gac aca tgc aga gag ccc | 4788 |
| Ala Arg Ser Glu Arg Ser Ala Ala Arg Ala Asp Thr Cys Arg Glu Pro | |
| 1520 1525 1530 | |
| tcc atg gaa ctg tgc ttt cca gaa act gcg aaa acc agt gac aac tcc | 4836 |
| Ser Met Glu Leu Cys Phe Pro Glu Thr Ala Lys Thr Ser Asp Asn Ser | |
| 1535 1540 1545 1550 | |
| aaa aat ctc ctc tct gtg gga agg acc cac cca gat ttc tat aca cag | 4884 |
| Lys Asn Leu Leu Ser Val Gly Arg Thr His Pro Asp Phe Tyr Thr Gln | |
| 1555 1560 1565 | |
| acc cag gcc atg gag aaa gca tgg gcg ccg ggt ggg aaa acg aac cac | 4932 |
| Thr Gln Ala Met Glu Lys Ala Trp Ala Pro Gly Gly Lys Thr Asn His | |
| 1570 1575 1580 | |
| aaa gat ggc cca ggt gag gcg agg ccc ccg ccc aga gac aac tcc tct | 4980 |
| Lys Asp Gly Pro Gly Glu Ala Arg Pro Pro Pro Arg Asp Asn Ser Ser | |
| 1585 1590 1595 | |
| ctg cac tca gct gga att ccc tgt gag aag gag ctg ggc aag gtg agg | 5028 |
| Leu His Ser Ala Gly Ile Pro Cys Glu Lys Glu Leu Gly Lys Val Arg | |
| 1600 1605 1610 | |
| cgt ggc gtg gaa ccc aag ccc gaa gcg ctt ctt gcc agg cgg tct ctg | 5076 |
| Arg Gly Val Glu Pro Lys Pro Glu Ala Leu Leu Ala Arg Arg Ser Leu | |
| 1615 1620 1625 1630 | |
| cag cca cct gga att gag agt gag aag agt gaa aag ctc tcc agt ttc | 5124 |
| Gln Pro Pro Gly Ile Glu Ser Glu Lys Ser Glu Lys Leu Ser Ser Phe | |
| 1635 1640 1645 | |
| cca tct ttg cag aaa gat ggt gcc aag gaa cct gaa agg aag gag cag | 5172 |
| Pro Ser Leu Gln Lys Asp Gly Ala Lys Glu Pro Glu Arg Lys Glu Gln | |
| 1650 1655 1660 | |
| cct cta caa agg cat ccc agc agc atc cct ccg ccc cct ctg acg gcc | 5220 |

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|---|------|
| Pro Leu Gln Arg His Pro Ser Ser Ile Pro Pro Pro Pro Leu Thr Ala | |
| 1665 1670 1675 | |
| aaa gac ctg tcc agc ccg gct gcc agg cag cat tgc agt tcc cca agc | 5268 |
| Lys Asp Leu Ser Ser Pro Ala Ala Arg Gln His Cys Ser Ser Pro Ser | |
| 1680 1685 1690 | |
| cac gct tct ggc aga gag ccg ggg gcc aag ccc agc act gca gag ccc | 5316 |
| His Ala Ser Gly Arg Glu Pro Gly Ala Lys Pro Ser Thr Ala Glu Pro | |
| 1695 1700 1705 1710 | |
| agc tgc agc ccc cag gac cct ccc aag cct gtt gct gcg cac agt gaa | 5364 |
| Ser Ser Ser Pro Gln Asp Pro Pro Lys Pro Val Ala Ala His Ser Glu | |
| 1715 1720 1725 | |
| agc agc agc cac aag ccc cgg cct ggc cct gac ccg ggc cct cca aag | 5412 |
| Ser Ser Ser His Lys Pro Arg Pro Gly Pro Asp Pro Gly Pro Pro Lys | |
| 1730 1735 1740 | |
| act aag cac ccc gac cgg tcc ctc tcc tct cag aaa cca agt gtc ggg | 5460 |
| Thr Lys His Pro Asp Arg Ser Leu Ser Ser Gln Lys Pro Ser Val Gly | |
| 1745 1750 1755 | |
| gcc aca aag ggc aaa gag cct gcc act cag tcc ctc ggt ggc tct agc | 5508 |
| Ala Thr Lys Gly Lys Glu Pro Ala Thr Gln Ser Leu Gly Gly Ser Ser | |
| 1760 1765 1770 | |
| aga gag ggg aag ggc cac agt aag agt ggg ccg gat gtg ttt cct gct | 5556 |
| Arg Glu Gly Lys Gly His Ser Lys Ser Gly Pro Asp Val Phe Pro Ala | |
| 1775 1780 1785 1790 | |
| acc cca ggc tcc cag aac aaa gcc agc gat ggg att ggc cag gga gaa | 5604 |
| Thr Pro Gly Ser Gln Asn Lys Ala Ser Asp Gly Ile Gly Gln Gly Glu | |
| 1795 1800 1805 | |
| ggt ggg ccc tct gtc cca ctg cac act gac agg gct cct cta gac gcc | 5652 |
| Gly Gly Pro Ser Val Pro Leu His Thr Asp Arg Ala Pro Leu Asp Ala | |
| 1810 1815 1820 | |
| aag cca caa ccc acc agt ggt ggg cgg ccc ctg gag gtg ctg gag aag | 5700 |
| Lys Pro Gln Pro Thr Ser Gly Gly Arg Pro Leu Glu Val Leu Glu Lys | |
| 1825 1830 1835 | |
| cct gtg cat ttg cca agg ccg gga cac cca ggg cct agt gag cca gcg | 5748 |
| Pro Val His Leu Pro Arg Pro Gly His Pro Gly Pro Ser Glu Pro Ala | |
| 1840 1845 1850 | |
| gac cag aaa ctg tcc gct gtt ggt gaa aag caa acc ctg tct cca aag | 5796 |
| Asp Gln Lys Leu Ser Ala Val Gly Glu Lys Gln Thr Leu Ser Pro Lys | |
| 1855 1860 1865 1870 | |
| cac ccc aaa cca tcc act gtg aaa gat tgc ccc acc ctg tgc aaa cag | 5844 |
| His Pro Lys Pro Ser Thr Val Lys Asp Cys Pro Thr Leu Cys Lys Gln | |
| 1875 1880 1885 | |
| aca gac aac aga cag aca gac aaa agc ccg agt cag ccg gcc gcc aac | 5892 |
| Thr Asp Asn Arg Gln Thr Asp Lys Ser Pro Ser Gln Pro Ala Ala Asn | |
| 1890 1895 1900 | |
| acc gac aga agg gcg gaa ggg aag aaa tgc act gaa gca ctt tat gct | 5940 |
| Thr Asp Arg Arg Ala Glu Gly Lys Lys Cys Thr Glu Ala Leu Tyr Ala | |
| 1905 1910 1915 | |
| cca gca gag ggc gac aag ctc gag gcc ggc ctt tcc ttt gtg cat agc | 5988 |

Pro Ala Glu Gly Asp Lys Leu Glu Ala Gly Leu Ser Phe Val His Ser
 1920 1925 1930

gag aac cgg ttg aaa ggc gcg gag cgg cca gcc gcg ggg gtg ggg aag 6036
 Glu Asn Arg Leu Lys Gly Ala Glu Arg Pro Ala Ala Gly Val Gly Lys
 1935 1940 1945 1950

ggc ttc cct gag gcc aga ggg aaa ggg ccc ggt ccc cag aag cca ccg 6084
 Gly Phe Pro Glu Ala Arg Gly Lys Gly Pro Gly Pro Gln Lys Pro Pro
 1955 1960 1965

acg gag gca gac aag ccc aat ggc atg aaa cgg tcc ccc tca gcc act 6132
 Thr Glu Ala Asp Lys Pro Asn Gly Met Lys Arg Ser Pro Ser Ala Thr
 1970 1975 1980

ggg cag agt tct ttc cga tcc acg gcc ctc ccg gaa aag tct ctg agc 6180
 Gly Gln Ser Ser Phe Arg Ser Thr Ala Leu Pro Glu Lys Ser Leu Ser
 1985 1990 1995

tgc tcc tcc agc ttc cct gaa acc agg gcc gga gtt aga gag gcc tct 6228
 Cys Ser Ser Ser Phe Pro Glu Thr Arg Ala Gly Val Arg Glu Ala Ser
 2000 2005 2010

gca gcc agc agc gac acc tct tct gcc aag gcc gcc ggg ggc atg ctg 6276
 Ala Ala Ser Ser Asp Thr Ser Ser Ala Lys Ala Ala Gly Gly Met Leu
 2015 2020 2025 2030

gag ctt cca gcc ccc agc aac agg gac cat agg aag gct cag cct gcc 6324
 Glu Leu Pro Ala Pro Ser Asn Arg Asp His Arg Lys Ala Gln Pro Ala
 2035 2040 2045

ggg gag ggc cga acc cac atg aca aag agt gac tcc ctg ccc tcc ttc 6372
 Gly Glu Gly Arg Thr His Met Thr Lys Ser Asp Ser Leu Pro Ser Phe
 2050 2055 2060

cgg gtc tcc acc ctg cct ctg gag tca cac cac ccc gac cca aac acc 6420
 Arg Val Ser Thr Leu Pro Leu Glu Ser His His Pro Asp Pro Asn Thr
 2065 2070 2075

atg ggc ggg gcc agc cac cgg gac agg gct ctc tcg gtg act gcc acc 6468
 Met Gly Gly Ala Ser His Arg Asp Arg Ala Leu Ser Val Thr Ala Thr
 2080 2085 2090

gta ggg gaa acc aaa ggg aag gac cct gcc cca gcc cag cct ccc cca 6516
 Val Gly Glu Thr Lys Gly Lys Asp Pro Ala Pro Ala Gln Pro Pro Pro
 2095 2100 2105 2110

gct agg aaa cag aac gtg ggc aga gac gtg acc aag cca tcc cca gcc 6564
 Ala Arg Lys Gln Asn Val Gly Arg Asp Val Thr Lys Pro Ser Pro Ala
 2115 2120 2125

cca aac act gac cgc ccc atc tct ctt tct aat gag aag gac ttt gtg 6612
 Pro Asn Thr Asp Arg Pro Ile Ser Leu Ser Asn Glu Lys Asp Phe Val
 2130 2135 2140

gta cgg cag agg cgg ggg aaa gag agt ttg cgt agc agc cct cac aaa 6660
 Val Arg Gln Arg Arg Gly Lys Glu Ser Leu Arg Ser Ser Pro His Lys
 2145 2150 2155

aag gcc ttg taa cgg ggagggccca ggggcaggac tgtggagacc cgtcctgaac 6715
 Lys Ala Leu *
 2160

gggcgactgt gtcttgacta cctttcaaaa ccagcactgt gtgggaatgt ccgccaggca 6775

gagctcggag cctcattgag acaggggaga gagaaagaca aagaggggac cttcttccag 6835
 atgccttccc agttgtaacc ggtaaaactg ttaccagata gtgtttgtac aaaaaaaaaa 6895
 aacc 6899

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<400> 638
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 Met Pro Ala Ser Phe Pro Leu Ser Arg Asn Ala Gly Thr Arg Gly Gly
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 aat cca gcc cca tcg ccc cct ctg cga agt cct ggg aag gga aga ctc 96
 Asn Pro Ala Pro Ser Pro Pro Leu Arg Ser Pro Gly Lys Gly Arg Leu
 20 25 30
 gcc agc ccc atc cta cct caa cgc agc ggc aac ata ccg gag gcc cca 144
 Ala Ser Pro Ile Leu Pro Gln Arg Ser Gly Asn Ile Pro Glu Ala Pro
 35 40 45
 cgt cga tac gac cca ggc gtc cgc att gga ttg ggc ggt gcg gcg gcg 192
 Arg Arg Tyr Asp Pro Gly Val Arg Ile Gly Leu Gly Gly Ala Ala Ala
 50 55 60
 ctt ctg tcc gcc ttc cgg tgt cac gcg acc gcc tcc ccc tcc cac cct 240
 Leu Leu Ser Ala Phe Arg Cys His Ala Thr Ala Ser Pro Ser His Pro
 65 70 75 80
 tct ctg tct acc tct ggg cgg gac tgc cgg gtg atg aga tac tcg gtc 288
 Ser Leu Ser Thr Ser Gly Arg Asp Cys Arg Val Met Arg Tyr Ser Val
 85 90 95
 ggc gac ggt aga acg ggc gac ggc gac aac cgc aat cac atc cac gac 336
 Gly Asp Gly Arg Thr Gly Asp Gly Asp Asn Arg Asn His Ile His Asp
 100 105 110
 ggt gat cat ggc aga ggt gag gag cct att gca ccg ccg ctg gcc ccc 384
 Gly Asp His Gly Arg Gly Glu Glu Pro Ile Ala Pro Pro Leu Ala Pro
 115 120 125
 cgg acc cgg aag ccg cct ctg agg ccc ggg gac cga gcg ccc gtg tgc 432
 Arg Thr Arg Lys Pro Pro Leu Arg Pro Gly Asp Arg Ala Pro Val Cys
 130 135 140
 agg tgg gct ggg ttg agg aat cac gcc cag aat aaa gcc aag ctc atc 480
 Arg Trp Ala Gly Leu Arg Asn His Ala Gln Asn Lys Ala Lys Leu Ile
 145 150 155 160
 tct gag acc cgg agg agg ttc gaa gct gag tat gtg aca gat aag tca 528
 Ser Glu Thr Arg Arg Arg Phe Glu Ala Glu Tyr Val Thr Asp Lys Ser
 165 170 175

| | |
|---|------|
| gat aaa tat gat gca cgt gat gtt gaa agg cta caa caa gat gat aac | 576 |
| Asp Lys Tyr Asp Ala Arg Asp Val Glu Arg Leu Gln Gln Asp Asp Asn | |
| 180 185 190 | |
| tggttt gaa agt tac tta tct tgg aga cat aat att gta gat gaa aca | 624 |
| Trp Val Glu Ser Tyr Leu Ser Trp Arg His Asn Ile Val Asp Glu Thr | |
| 195 200 205 | |
| ctg aag atg ctc gat gag agt ttt cag tgg agg aaa gaa att tct gtc | 672 |
| Leu Lys Met Leu Asp Glu Ser Phe Gln Trp Arg Lys Glu Ile Ser Val | |
| 210 215 220 | |
| aat gtc tgg atc agg gtg aag tat cat gta aaa gac cag aaa acc ata | 720 |
| Asn Val Trp Ile Arg Val Lys Tyr His Val Lys Asp Gln Lys Thr Ile | |
| 225 230 235 240 | |
| ttg gac aaa aag aag ctc ata gca ttc tgg ttg gaa cgt tat gct aag | 768 |
| Leu Asp Lys Lys Lys Leu Ile Ala Phe Trp Leu Glu Arg Tyr Ala Lys | |
| 245 250 255 | |
| agg gaa aat ggg aaa cct gta aca gtg atg ttt gac ctg tca gaa act | 816 |
| Arg Glu Asn Gly Lys Pro Val Thr Val Met Phe Asp Leu Ser Glu Thr | |
| 260 265 270 | |
| gga ata aat agc att gac atg gac ttt gta cgc ttt atc atc aac tgc | 864 |
| Gly Ile Asn Ser Ile Asp Met Asp Phe Val Arg Phe Ile Ile Asn Cys | |
| 275 280 285 | |
| ttt aag gtt tat tac cct aaa tac ctc tct gct ttc aaa att gtg aaa | 912 |
| Phe Lys Val Tyr Tyr Pro Lys Tyr Leu Ser Ala Phe Lys Ile Val Lys | |
| 290 295 300 | |
| acc tgg ctt ggt cca gaa gca gtg agc ttg ttg aag ttt aca agc aaa | 960 |
| Thr Trp Leu Gly Pro Glu Ala Val Ser Leu Leu Lys Phe Thr Ser Lys | |
| 305 310 315 320 | |
| aat gaa gtc cag gac tat gtc agt gta gaa tac ctg cct ccc cac atg | 1008 |
| Asn Glu Val Gln Asp Tyr Val Ser Val Glu Tyr Leu Pro Pro His Met | |
| 325 330 335 | |
| ggt gga act gat cct ttc aag tat agc tat cca cca cta gta gat gat | 1056 |
| Gly Gly Thr Asp Pro Phe Lys Tyr Ser Tyr Pro Pro Leu Val Asp Asp | |
| 340 345 350 | |
| gac ttc cag acc cca ctg tgt gag aat ggg cct att acc agt gag gat | 1104 |
| Asp Phe Gln Thr Pro Leu Cys Glu Asn Gly Pro Ile Thr Ser Glu Asp | |
| 355 360 365 | |
| gaa act tca agt aaa gaa gac ata gaa agt gat ggc aaa gaa aca ttg | 1152 |
| Glu Thr Ser Ser Lys Glu Asp Ile Glu Ser Asp Gly Lys Glu Thr Leu | |
| 370 375 380 | |
| gaa aca att tct aat gaa gaa caa aca cct ctt ctt aaa aag att aac | 1200 |
| Glu Thr Ile Ser Asn Glu Glu Gln Thr Pro Leu Leu Lys Lys Ile Asn | |
| 385 390 395 400 | |
| cca acc gaa tct act tcc aaa gca gaa gaa aat gaa aaa gtt gat tca | 1248 |
| Pro Thr Glu Ser Thr Ser Lys Ala Glu Glu Asn Glu Lys Val Asp Ser | |
| 405 410 415 | |
| aaa gtg aaa gct ttc aag aaa cca ttg agt gta ttt aaa ggc ccc tta | 1296 |
| Lys Val Lys Ala Phe Lys Lys Pro Leu Ser Val Phe Lys Gly Pro Leu | |
| 420 425 430 | |

cta cac atc agc cca gca gaa gaa ctg tac ttt gga agt aca gaa tcc 1344
 Leu His Ile Ser Pro Ala Glu Glu Leu Tyr Phe Gly Ser Thr Glu Ser
 435 440 445

 gga gag aag aaa acc tta ata gtg ttg aca aat gta act aaa aat ata 1392
 Gly Glu Lys Lys Thr Leu Ile Val Leu Thr Asn Val Thr Lys Asn Ile
 450 455 460

 gtg gca ttt aag gtg aga aca aca gct cca gaa aaa tac aga gtc aag 1440
 Val Ala Phe Lys Val Arg Thr Thr Ala Pro Glu Lys Tyr Arg Val Lys
 465 470 475 480

 cca agc aat agc agc tgt gac ccg ggt gca tca gtg gat ata gtt gtg 1488
 Pro Ser Asn Ser Ser Cys Asp Pro Gly Ala Ser Val Asp Ile Val Val
 485 490 495

 tct ccc cat ggg ggt tta aca gtc tct gcc caa gac cgt ttt ctg ata 1536
 Ser Pro His Gly Gly Leu Thr Val Ser Ala Gln Asp Arg Phe Leu Ile
 500 505 510

 atg gct gca gaa atg gaa cag tca tct ggc aca ggc cca gca gaa tta 1584
 Met Ala Ala Glu Met Glu Gln Ser Ser Gly Thr Gly Pro Ala Glu Leu
 515 520 525

 act cag ttt tgg aaa gaa gtt ccc aga aac aaa gtg atg gaa cat agg 1632
 Thr Gln Phe Trp Lys Glu Val Pro Arg Asn Lys Val Met Glu His Arg
 530 535 540

 tta aga tgc cat act gtt gaa agc agt aaa cca aac act ctt acg tta 1680
 Leu Arg Cys His Thr Val Glu Ser Ser Lys Pro Asn Thr Leu Thr Leu
 545 550 555 560

 aaa gac aat gct ttc aat atg tca gat aaa acc agt gaa gat ata tgt 1728
 Lys Asp Asn Ala Phe Asn Met Ser Asp Lys Thr Ser Glu Asp Ile Cys
 565 570 575

 cta caa ctc agt cgt tta cta gaa agc aat agg aag ctt gaa gac caa 1776
 Leu Gln Leu Ser Arg Leu Leu Glu Ser Asn Arg Lys Leu Glu Asp Gln
 580 585 590

 gtt cag cgt tgt atc tgg ttc cag cag ctg ctg ctt tcc tta aca atg 1824
 Val Gln Arg Cys Ile Trp Phe Gln Gln Leu Leu Leu Ser Leu Thr Met
 595 600 605

 ctc ttg ctt gct ttt gtc acc tct ttc ttc tat tta ttg tac agt taa 1872
 Leu Leu Leu Ala Phe Val Thr Ser Phe Phe Tyr Leu Leu Tyr Ser *
 610 615 620

 agaagtgggtg ccgggtagga accacggttc cttcgtccat tagttggaaa aagtaacaga 1932
 cctaaaactc taccaagcta ctaaaaacat tgcacatctg tgcttcctaa aaggaaatat 1992
 gcagcacgtg gaggggaaca catacatgtc ttgaaaataa actgctagaa taaagaaatg 2052
 ctggagaaat tgaaaaaaa aaaaa 2077

<210> 639

<211> 601

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (89)..(448)

<400> 639

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tccgagtaca cggagaagaa ctggaaac  atg caa aaa ctc caa aca cgg tcc      112
                               Met Gln Lys Leu Gln Thr Arg Ser
                               1                               5

cct gcc atg tcc ctg tct gac cca ggc ctg ggg tac cac ccc acg tgc      160
Pro Ala Met Ser Leu Ser Asp Pro Gly Leu Gly Tyr His Pro Thr Cys
    10                               15                               20

tgg acc cta cgc tgg cca ccc ctg tgc tcc ctc cac gcc ctc cac gtg      208
Trp Thr Leu Arg Trp Pro Pro Leu Cys Ser Leu His Ala Leu His Val
    25                               30                               35                               40

ttc cac tgc ctc ttc tct tct cgc ttg gga act cca gtc tca cct cgg      256
Phe His Cys Leu Phe Ser Ser Arg Leu Gly Thr Pro Val Ser Pro Arg
                               45                               50                               55

ctt gca atg gac ccc aac tgc tcc tgc gag gct ggt ggc tcc tgc gcc      304
Leu Ala Met Asp Pro Asn Cys Ser Cys Glu Ala Gly Gly Ser Cys Ala
                               60                               65                               70

tgc gcc ggc tcc tgc aag tgc aaa aag tgc aaa tgc acc tcc tgc aag      352
Cys Ala Gly Ser Cys Lys Cys Lys Lys Cys Lys Cys Thr Ser Cys Lys
    75                               80                               85

aag agc tgc tgc tcc tgt tgc ccc ctg ggc tgt gcc aag tgt gcc cag      400
Lys Ser Cys Cys Ser Cys Cys Pro Leu Gly Cys Ala Lys Cys Ala Gln
    90                               95                               100

ggc tgc atc tgc aaa ggg gcg tca gag aag tgc agc tgc tgt gcc tga      448
Gly Cys Ile Cys Lys Gly Ala Ser Glu Lys Cys Ser Cys Cys Ala *
    105                               110                               115                               120

tgtcgggaca gccctgctgt cagatgaaaa cagaatgaca cgtaaaatcc aggatttttt      508

tttttctaca actccgactc atttgctaca ttcctttttt ttctgtgaaa tatgtgaata      568

ataattaaac acttagactt gaaaaaaaaa aaa      601
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<210> 640

<211> 1856

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1061)..(1780)

<220>

<221> misc_feature

<222> (1)...(1856)

<223> n = a,t,c or g

<400> 640

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ccgcgccttt tgcccgtgaa gcgccggtga cgcttgagat tggttttggc atgggggcgt      60
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1780

```

agc cgt ctg acc aaa ctt gat gcg cag ctg aaa gag cag atg aac cgc      1459
Ser Arg Leu Thr Lys Leu Asp Ala Gln Leu Lys Glu Gln Met Asn Arg
      120                      125                      130

att att gaa acg cgc agc gat ggc ctg acg ttt cac tat aaa gcc att      1507
Ile Ile Glu Thr Arg Ser Asp Gly Leu Thr Phe His Tyr Lys Ala Ile
      135                      140                      145

gat cag gtt cgc gcc gaa ggc cag caa tta gtg aat cag gca atg ggt      1555
Asp Gln Val Arg Ala Glu Gly Gln Gln Leu Val Asn Gln Ala Met Gly
      150                      155                      160                      165

gga att tta cag gac agc att aat gaa atg ggc gcg aaa gcg gtg ctg      1603
Gly Ile Leu Gln Asp Ser Ile Asn Glu Met Gly Ala Lys Ala Val Leu
      170                      175                      180

aaa agc ggc ggt aac cca tta cag aat gtg ctg gga agc ctg ggg ggg      1651
Lys Ser Gly Gly Asn Pro Leu Gln Asn Val Leu Gly Ser Leu Gly Gly
      185                      190                      195

ctg caa tcc tca atc caa acc gag tgg aaa aag cag gaa aaa gat ttc      1699
Leu Gln Ser Ser Ile Gln Thr Glu Trp Lys Lys Gln Glu Lys Asp Phe
      200                      205                      210

cag cag ttt ggc aaa gat gtt tgt agc cgc gtt gtg act ctg gaa gat      1747
Gln Gln Phe Gly Lys Asp Val Cys Ser Arg Val Val Thr Leu Glu Asp
      215                      220                      225

agc cgc aaa gcc ctg gtc ggg aat tta aaa taa tcctctat tttaagacgg      1798
Ser Arg Lys Ala Leu Val Gly Asn Leu Lys *
      230                      235                      240

cataatactt ttttatgccg nttaattctt cgttttgtta cctgcctcta actttgta      1856

```

<210> 641
 <211> 2659
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (230) .. (2164)

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<400> 641
ggtcggaat tcccgggtcg acgatttcgt cgcgggggag cagtcgcta cggagctcca      60
tcccttctct gagacgggga ccaggggatg gcagccatgc acctgacagc ctggccccag      120
gaacctattg tttcagaagt cggtgacctt tgaggacgtg gctgtgtact tcacccaggc      180
ggaatgggat ggcctgtccc ctgcacagag gaccctgtac agggatgtg      atg ctg      235
                                     Met Leu
                                     1

gag aat tat ggg aat gtg gca tcc ctg gga ttt cca ctt ctc aaa cct      283
Glu Asn Tyr Gly Asn Val Ala Ser Leu Gly Phe Pro Leu Leu Lys Pro
      5                      10                      15

gct gtg atc tca caa ctg gag gga gga agt gag ctg ggg ggc tca tct      331
Ala Val Ile Ser Gln Leu Glu Gly Gly Ser Glu Leu Gly Gly Ser Ser

```

| 20 | 25 | 30 | |
|---|-----|-----|------|
| cca ctg gct gca gga aca ggc ctc cag ggc ctc cag act gta gat att | | | 379 |
| Pro Leu Ala Ala Gly Thr Gly Leu Gln Gly Leu Gln Thr Val Asp Ile | | | |
| 35 | 40 | 45 | 50 |
| cag act gac aat gat ttg aca aag gaa atg tat gaa gga aaa gag aat | | | 427 |
| Gln Thr Asp Asn Asp Leu Thr Lys Glu Met Tyr Glu Gly Lys Glu Asn | | | |
| | 55 | 60 | 65 |
| gta tca ttt gaa ctt caa aga gac ttt tcc cag gaa aca gac ttt tca | | | 475 |
| Val Ser Phe Glu Leu Gln Arg Asp Phe Ser Gln Glu Thr Asp Phe Ser | | | |
| | 70 | 75 | 80 |
| gaa gcc tct ctt cta gag aaa caa cag gaa gtc cac tca gca gga aat | | | 523 |
| Glu Ala Ser Leu Leu Glu Lys Gln Gln Glu Val His Ser Ala Gly Asn | | | |
| | 85 | 90 | 95 |
| ata aag aag gag aag agc aac acc att gat gga aca gtg aaa gat gag | | | 571 |
| Ile Lys Lys Glu Lys Ser Asn Thr Ile Asp Gly Thr Val Lys Asp Glu | | | |
| | 100 | 105 | 110 |
| aca agc ccc gtg gag gag tgt ttt ttt agt caa agt tca aac tca tat | | | 619 |
| Thr Ser Pro Val Glu Glu Cys Phe Phe Ser Gln Ser Ser Asn Ser Tyr | | | |
| | 115 | 120 | 125 |
| cag tgt cat acc atc act gga gag cag ccc tct ggg tgt aca gga ttg | | | 667 |
| Gln Cys His Thr Ile Thr Gly Glu Gln Pro Ser Gly Cys Thr Gly Leu | | | |
| | 135 | 140 | 145 |
| ggg aaa tcc atc agc ttt gat aca aaa ctc gtg aag cat gaa ata att | | | 715 |
| Gly Lys Ser Ile Ser Phe Asp Thr Lys Leu Val Lys His Glu Ile Ile | | | |
| | 150 | 155 | 160 |
| aat tct gag gaa aga cct ttc aaa tgt gaa gaa tta gta gag ccc ttt | | | 763 |
| Asn Ser Glu Glu Arg Pro Phe Lys Cys Glu Glu Leu Val Glu Pro Phe | | | |
| | 165 | 170 | 175 |
| agg tgt gac tct caa ctt att caa cat caa gag aac aac act gag gaa | | | 811 |
| Arg Cys Asp Ser Gln Leu Ile Gln His Gln Glu Asn Asn Thr Glu Glu | | | |
| | 180 | 185 | 190 |
| aag cct tat cag tgt tcg gag tgt ggc aaa gct ttc agc att aat gag | | | 859 |
| Lys Pro Tyr Gln Cys Ser Glu Cys Gly Lys Ala Phe Ser Ile Asn Glu | | | |
| | 195 | 200 | 205 |
| aaa tta att tgg cat cag aga ctt cac agt ggg gag aaa ccc ttc aaa | | | 907 |
| Lys Leu Ile Trp His Gln Arg Leu His Ser Gly Glu Lys Pro Phe Lys | | | |
| | 215 | 220 | 225 |
| tgt gtg gag tgt ggg aaa agc ttc agc tac agt tcc cat tat atc aca | | | 955 |
| Cys Val Glu Cys Gly Lys Ser Phe Ser Tyr Ser Ser His Tyr Ile Thr | | | |
| | 230 | 235 | 240 |
| cat cag aca atc cac agt ggg gag aag ccc tat cag tgt aag atg tgt | | | 1003 |
| His Gln Thr Ile His Ser Gly Glu Lys Pro Tyr Gln Cys Lys Met Cys | | | |
| | 245 | 250 | 255 |
| ggg aag gcc ttc agt gtt aat gga agc cta agt agg cat cag aga atc | | | 1051 |
| Gly Lys Ala Phe Ser Val Asn Gly Ser Leu Ser Arg His Gln Arg Ile | | | |
| | 260 | 265 | 270 |
| cat acg gga gag aag ccc tat cag tgc aag gaa tgt gga aat ggc ttc | | | 1099 |
| His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Glu Cys Gly Asn Gly Phe | | | |

| 275 | 280 | 285 | 290 | |
|---|-----|-----|-----|------|
| agc tgt agt tct gca tat att aca cat cag aga gtc cac act gga gag | | | | 1147 |
| Ser Cys Ser Ser Ala Tyr Ile Thr His Gln Arg Val His Thr Gly Glu | | | | |
| | 295 | 300 | 305 | |
| aaa cct tac gag tgt aat gac tgt ggg aaa gcg ttc aat gtt aat gca | | | | 1195 |
| Lys Pro Tyr Glu Cys Asn Asp Cys Gly Lys Ala Phe Asn Val Asn Ala | | | | |
| | 310 | 315 | 320 | |
| aaa tta att caa cat cag aga atc cat act gga gag aaa cct tat gaa | | | | 1243 |
| Lys Leu Ile Gln His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu | | | | |
| | 325 | 330 | 335 | |
| tgt aat gaa tgt gga aaa ggc ttc agg tgc agc tcc cag ctt agg cag | | | | 1291 |
| Cys Asn Glu Cys Gly Lys Gly Phe Arg Cys Ser Ser Gln Leu Arg Gln | | | | |
| | 340 | 345 | 350 | |
| cat cag agc atc cac aca gga gaa aag ccc tat cag tgt aaa gag tgt | | | | 1339 |
| His Gln Ser Ile His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Glu Cys | | | | |
| | 355 | 360 | 365 | 370 |
| gga aaa ggc ttc aat aat aat aca aaa ctc att cag cat cag aga atc | | | | 1387 |
| Gly Lys Gly Phe Asn Asn Asn Thr Lys Leu Ile Gln His Gln Arg Ile | | | | |
| | 375 | 380 | 385 | |
| cac aca ggt gag aaa ccc tat gaa tgc act gaa tgt gga aaa gcc ttc | | | | 1435 |
| His Thr Gly Glu Lys Pro Tyr Glu Cys Thr Glu Cys Gly Lys Ala Phe | | | | |
| | 390 | 395 | 400 | |
| agt gtc aaa ggg aag tta atc caa cac cag aga att cac aca ggc gag | | | | 1483 |
| Ser Val Lys Gly Lys Leu Ile Gln His Gln Arg Ile His Thr Gly Glu | | | | |
| | 405 | 410 | 415 | |
| aaa ccc tat gag tgt aat gaa tgc ggg aaa gcc ttc aga tgt aac tcc | | | | 1531 |
| Lys Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Arg Cys Asn Ser | | | | |
| | 420 | 425 | 430 | |
| caa ttt cgg cag cat ctg aga att cac act ggg gag aag ccc tat gag | | | | 1579 |
| Gln Phe Arg Gln His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr Glu | | | | |
| | 435 | 440 | 445 | 450 |
| tgt aat gag tgt gga aag gcc ttc agc gtt aat ggg aaa cta atg cgg | | | | 1627 |
| Cys Asn Glu Cys Gly Lys Ala Phe Ser Val Asn Gly Lys Leu Met Arg | | | | |
| | 455 | 460 | 465 | |
| cat cag aga att cac act ggg gag aaa cct ttt gaa tgt aat gag tgt | | | | 1675 |
| His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys Asn Glu Cys | | | | |
| | 470 | 475 | 480 | |
| ggg aga tgc ttt act tct aaa aga aac cta ctt gat cat cac cga atc | | | | 1723 |
| Gly Arg Cys Phe Thr Ser Lys Arg Asn Leu Leu Asp His His Arg Ile | | | | |
| | 485 | 490 | 495 | |
| cat act gga gaa aag ccc tat caa tgt aag gaa tgt ggg aaa gcc ttc | | | | 1771 |
| His Thr Gly Glu Lys Pro Tyr Gln Cys Lys Glu Cys Gly Lys Ala Phe | | | | |
| | 500 | 505 | 510 | |
| agt atc aat gcc aaa cta act agg cat cag agg ata cat act ggg gag | | | | 1819 |
| Ser Ile Asn Ala Lys Leu Thr Arg His Gln Arg Ile His Thr Gly Glu | | | | |
| | 515 | 520 | 525 | 530 |
| aaa cct ttc aaa tgt atg gaa tgt gag aaa gca ttc agc tgt agt tct | | | | 1867 |
| Lys Pro Phe Lys Cys Met Glu Cys Glu Lys Ala Phe Ser Cys Ser Ser | | | | |

| | 535 | 540 | 545 | |
|--|-----|-----|-----|------|
| aac tat att gtg cac cag aga atc cat aca gga gag aaa ccc ttt cag | | | | 1915 |
| Asn Tyr Ile Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Gln | | | | |
| | 550 | 555 | 560 | |
| tgt aag gag tgt gga aaa gcc ttc cat gtt aat gcc cat tta att cgg | | | | 1963 |
| Cys Lys Glu Cys Gly Lys Ala Phe His Val Asn Ala His Leu Ile Arg | | | | |
| | 565 | 570 | 575 | |
| cat cag aga agc cac act ggg gag aaa ccc ttc aga tgt gtg gaa tgt | | | | 2011 |
| His Gln Arg Ser His Thr Gly Glu Lys Pro Phe Arg Cys Val Glu Cys | | | | |
| | 580 | 585 | 590 | |
| ggc aaa ggc ttc agc ttt agt tct gac tac att ata cat cag aca gtc | | | | 2059 |
| Gly Lys Gly Phe Ser Phe Ser Ser Asp Tyr Ile Ile His Gln Thr Val | | | | |
| | 595 | 600 | 605 | 610 |
| cac act tgg aag aaa ccc tat atg tgt agt gtg tgt ggg aaa gca ttc | | | | 2107 |
| His Thr Trp Lys Lys Pro Tyr Met Cys Ser Val Cys Gly Lys Ala Phe | | | | |
| | 615 | 620 | 625 | |
| agg ttt agc ttc cag ctc agt cag cat cag agt gtc cat agt gaa gga | | | | 2155 |
| Arg Phe Ser Phe Gln Leu Ser Gln His Gln Ser Val His Ser Glu Gly | | | | |
| | 630 | 635 | 640 | |
| aaa tcc taa taatgag aaagatatag aaaactctta aggttaatgc caaaatggat | | | | 2211 |
| Lys Ser * | | | | |
| | 645 | | | |
| caagtatcat cagattcatc cattgaaaaa cctccaagag ggcatgaata tggcagagtc | | | | 2271 |
| ttcatatgga aacagttttt attctattca gtttaaataca ggaaaggatg accagttaaa | | | | 2331 |
| gagaaacatc caaaaatagc tttgttttgt accaacagga attagaaaat ataataaaaa | | | | 2391 |
| gatttcgttc ccagcagcat caagaaaagt agatttttcta gaaataaaca gttatggagg | | | | 2451 |
| acttgtatgg agaaatttaa gtcttcactg agggccactt tacaaaggaa atttgaataa | | | | 2511 |
| atggagagag agagaagcct tgttgttgga taggaaaacc cgtactaaag atactctacc | | | | 2571 |
| tacattaatt tatttgttta atttttgaca acaagcatgt attacttttg aaaagatgaa | | | | 2631 |
| aaataaagat ttatttaaaa aaaaaaaa | | | | 2659 |

<210> 642
 <211> 510
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (53) .. (352)

| | | |
|---|-----|-----|
| <400> 642 | | |
| ccccggccagt gcatacaatt tacgtgacac tatagaagag ctatgacgtc gc | atg | 55 |
| | Met | |
| | 1 | |
| cac gcg tac gta agc ttg gat cct cta gag cgg ccg cct act act act | | 103 |

His Ala Tyr Val Ser Leu Asp Pro Leu Glu Arg Pro Pro Thr Thr Thr
 5 10 15

aaa ttc gcg gcc gcg tcc gac cgc cgc cgc gcc gcc atc atg gac acc 151
 Lys Phe Ala Ala Ala Ser Asp Arg Arg Arg Ala Ala Ile Met Asp Thr
 20 25 30

agc cgt gtg cag cct atc aag ctg gcc agg gtc acc aag gtc ctg ggc 199
 Ser Arg Val Gln Pro Ile Lys Leu Ala Arg Val Thr Lys Val Leu Gly
 35 40 45

agg acc ggt tct cag gga cag tgc acg cag gtg cgc gtg gaa ttc atg 247
 Arg Thr Gly Ser Gln Gly Gln Cys Thr Gln Val Arg Val Glu Phe Met
 50 55 60 65

gac gac acg agc cga tcc atc atc cgc aat gta aaa ggc ccc gtg cgc 295
 Asp Asp Thr Ser Arg Ser Ile Ile Arg Asn Val Lys Gly Pro Val Arg
 70 75 80

gag ggc gac gtg ctc acc ctt ttg gag tca gag cga gaa gcc cgg agg 343
 Glu Gly Asp Val Leu Thr Leu Leu Glu Ser Glu Arg Glu Ala Arg Arg
 85 90 95

ttg cgc tga gcttggc tgcctcgtgg gtcttgatg tcgggttcga ccacttgccc 399
 Leu Arg *
 100

gatgggaatg gtctgtcaca atctgctcct tttttttgtc cgccacacgt aactgagatg 459

ctccttttaa taaagcgttt gtgtttcaag ttaactcaga aaaaaaaaaa a 510

<210> 643
 <211> 997
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (67)..(948)

<400> 643
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caccaa atg gcg gat gac gcc ggt gca gcg ggg ggg ccc ggg ggc cct 108
 Met Ala Asp Asp Ala Gly Ala Ala Gly Gly Pro Gly Gly Pro
 1 5 10

ggt ggc cct ggg atg ggg aac cgc ggt ggc ttc cgc gga ggt ttc ggc 156
 Gly Gly Pro Gly Met Gly Asn Arg Gly Gly Phe Arg Gly Gly Phe Gly
 15 20 25 30

agt ggc atc cgg ggc cgg ggt cgc ggc cgt gga cgg ggc cgg ggc cga 204
 Ser Gly Ile Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg Gly Arg
 35 40 45

ggc cgc gga gct cgc gga ggc aag gcc gag gat aag gag tgg atg ccc 252
 Gly Arg Gly Ala Arg Gly Gly Lys Ala Glu Asp Lys Glu Trp Met Pro
 50 55 60

gtc acc aag ttg ggc cgc ttg gtc aag gac atg aag atc aag tcc ctg 300
 Val Thr Lys Leu Gly Arg Leu Val Lys Asp Met Lys Ile Lys Ser Leu

| 65 | 70 | 75 | |
|---|----|----|-----|
| gag gag atc tat ctc ttc tcc ctg ccc att aag gaa tca gag atc att Glu Glu Ile Tyr Leu Phe Ser Leu Pro Ile Lys Glu Ser Glu Ile Ile 80 85 90 | | | 348 |
| gat ttc ttc ctg ggg gcc tct ctc aag gat gag gtt ttg aag att atg Asp Phe Phe Leu Gly Ala Ser Leu Lys Asp Glu Val Leu Lys Ile Met 95 100 105 110 | | | 396 |
| cca gtg cag aag cag acc cgt gcc ggc cag cgc acc agg ttc aag gca Pro Val Gln Lys Gln Thr Arg Ala Gly Gln Arg Thr Arg Phe Lys Ala 115 120 125 | | | 444 |
| ttt gtt gct atc ggg gac tac aat ggc cac gtc ggt ctg ggt gtt aag Phe Val Ala Ile Gly Asp Tyr Asn Gly His Val Gly Leu Gly Val Lys 130 135 140 | | | 492 |
| tgc tcc aag gag gtg gcc acc gcc atc cgt ggg gcc atc atc ctg gcc Cys Ser Lys Glu Val Ala Thr Ala Ile Arg Gly Ala Ile Ile Leu Ala 145 150 155 | | | 540 |
| aag ctc tcc atc gtc ccc gtg cgc aga ggc tac tgg ggg aac aag atc Lys Leu Ser Ile Val Pro Val Arg Arg Gly Tyr Trp Gly Asn Lys Ile 160 165 170 | | | 588 |
| ggc aag ccc cac act gtc cct tgc aag gtg aca ggc cgc tgc ggc tct Gly Lys Pro His Thr Val Pro Cys Lys Val Thr Gly Arg Cys Gly Ser 175 180 185 190 | | | 636 |
| gtg ctg gta cgc ctc atc cct gca ccc agg ggc act ggc atc gtc tcc Val Leu Val Arg Leu Ile Pro Ala Pro Arg Gly Thr Gly Ile Val Ser 195 200 205 | | | 684 |
| gca cct gtg cct aag aag ctg ctc atg atg gct ggt atc gat gac tgc Ala Pro Val Pro Lys Lys Leu Leu Met Met Ala Gly Ile Asp Asp Cys 210 215 220 | | | 732 |
| tac acc tca gcc cgg ggc tgc act gcc acc ctg ggc aac ttc gcc aag Tyr Thr Ser Ala Arg Gly Cys Thr Ala Thr Leu Gly Asn Phe Ala Lys 225 230 235 | | | 780 |
| gcc acc ttt gat gcc att tct aag acc tac agc tac ctg acc ccc gac Ala Thr Phe Asp Ala Ile Ser Lys Thr Tyr Ser Tyr Leu Thr Pro Asp 240 245 250 | | | 828 |
| ctc tgg aag gag act gta ttc acc aag tct ccc tat cag gag ttc act Leu Trp Lys Glu Thr Val Phe Thr Lys Ser Pro Tyr Gln Glu Phe Thr 255 260 265 270 | | | 876 |
| gac cac ctc gtc aag acc cac acc aga gtc tcc gtg cag cgg act cag Asp His Leu Val Lys Thr His Thr Arg Val Ser Val Gln Arg Thr Gln 275 280 285 | | | 924 |
| gct cca gct gtg gct aca aca tag gggttttata caagaaaaat aaagtgaatt Ala Pro Ala Val Ala Thr Thr * | | | 978 |
| 290 | | | |
| aagcgtgaaa aaaaaaaaaa | | | 997 |

<211> 3323
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (162) .. (3323)

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 ccgccgccgc atcctccgct tgtgctaccg ccgcgggcgc tgggccgctc tgetgggtccg 120
 gcatgagacc gtgagacgag agacgggtcg gggccgccga c atg ttt ggc cgc 173
 Met Phe Gly Arg
 1
 tcg cgg agc tgg gtg ggc ggg ggc cat ggc aag act tcc cgc aac atc 221
 Ser Arg Ser Trp Val Gly Gly Gly His Gly Lys Thr Ser Arg Asn Ile
 5 10 15 20
 cac tcc ttg gac cac ctc aag tat ctg tac cac gtt ttg acc aaa aac 269
 His Ser Leu Asp His Leu Lys Tyr Leu Tyr His Val Leu Thr Lys Asn
 25 30 35
 acc aca gtc aca gaa cag aac cgg aac ctg cta gtg gag acc atc cgt 317
 Thr Thr Val Thr Glu Gln Asn Arg Asn Leu Leu Val Glu Thr Ile Arg
 40 45 50
 tcc atc act gag atc ctg atc tgg gga gat caa aat gac agc tct gta 365
 Ser Ile Thr Glu Ile Leu Ile Trp Gly Asp Gln Asn Asp Ser Ser Val
 55 60 65
 ttt gac ttc ttc ctg gag aag aat atg ttt gtt ttc ttc ttg aac atc 413
 Phe Asp Phe Phe Leu Glu Lys Asn Met Phe Val Phe Phe Leu Asn Ile
 70 75 80
 ttg cgg caa aag tcg ggc cgt tac gtg tgc gtt cag ctg ctg cag acc 461
 Leu Arg Gln Lys Ser Gly Arg Tyr Val Cys Val Gln Leu Leu Gln Thr
 85 90 95 100
 ttg aac atc ctc ttt gag aac atc agt cac gag acc tca ctt tat tat 509
 Leu Asn Ile Leu Phe Glu Asn Ile Ser His Glu Thr Ser Leu Tyr Tyr
 105 110 115
 ttg ctc tca aat aac tac gta aat tct atc atc gtt cat aaa ttt gac 557
 Leu Leu Ser Asn Asn Tyr Val Asn Ser Ile Ile Val His Lys Phe Asp
 120 125 130
 ttt tct gat gag gag att atg gcc tat tat ata tcg ttc ctg aaa aca 605
 Phe Ser Asp Glu Glu Ile Met Ala Tyr Tyr Ile Ser Phe Leu Lys Thr
 135 140 145
 ctt tcg tta aaa ctc aac aac cac act gtc cat ttc ttt tat aat gag 653
 Leu Ser Leu Lys Leu Asn Asn His Thr Val His Phe Phe Tyr Asn Glu
 150 155 160
 cac acc aat gac ttt gcc ctg tac aca gaa gcc atc aag ttt ttc aac 701
 His Thr Asn Asp Phe Ala Leu Tyr Thr Glu Ala Ile Lys Phe Phe Asn
 165 170 175 180
 cac cct gaa agc atg gtt aga att gct gta aga acc ata act ttg aat 749
 His Pro Glu Ser Met Val Arg Ile Ala Val Arg Thr Ile Thr Leu Asn
 185 190 195

| | |
|---|------|
| gtc tat aaa gtg tca ttg gat aac cag gcc atg ctg cac tac atc cga Val Tyr Lys Val Ser Leu Asp Asn Gln Ala Met Leu His Tyr Ile Arg 200 205 210 | 797 |
| gat aaa act gct gtt cct tac ttc tcc aat ttg gtc tgg ttc att ggg Asp Lys Thr Ala Val Pro Tyr Phe Ser Asn Leu Val Trp Phe Ile Gly 215 220 225 | 845 |
| agc cat gtg atc gaa ctc gat gac tgc gtg cag act gat gag gag cat Ser His Val Ile Glu Leu Asp Asp Cys Val Gln Thr Asp Glu Glu His 230 235 240 | 893 |
| cgg aat cgg ggt aaa ctg agt gat ctg gtg gca gag cac cta gac cac Arg Asn Arg Gly Lys Leu Ser Asp Leu Val Ala Glu His Leu Asp His 245 250 255 260 | 941 |
| ctg cac tat ctc aat gac atc ctg atc atc aac tgt gag ttc ctc aac Leu His Tyr Leu Asn Asp Ile Leu Ile Ile Asn Cys Glu Phe Leu Asn 265 270 275 | 989 |
| gat gtg ctc act gac cac ctg ctc aac agg ctc ttc ctg ccc ctc tac Asp Val Leu Thr Asp His Leu Leu Asn Arg Leu Phe Leu Pro Leu Tyr 280 285 290 | 1037 |
| gtg tac tca ctg gag aac cag gac aag gga gga gaa cgg ccg aaa att Val Tyr Ser Leu Glu Asn Gln Asp Lys Gly Gly Glu Arg Pro Lys Ile 295 300 305 | 1085 |
| agc ctg ccg gtg tct ctt tat ctt ctg tca cag gtc ttc tta att ata Ser Leu Pro Val Ser Leu Tyr Leu Leu Ser Gln Val Phe Leu Ile Ile 310 315 320 | 1133 |
| cat cat gca ccg ctg gtg aac tcg tta gct gaa gtc att ctg aat ggt His His Ala Pro Leu Val Asn Ser Leu Ala Glu Val Ile Leu Asn Gly 325 330 335 340 | 1181 |
| gat ctg tct gag atg tac gct aag act gaa cag gat att cag aga agt Asp Leu Ser Glu Met Tyr Ala Lys Thr Glu Gln Asp Ile Gln Arg Ser 345 350 355 | 1229 |
| tct gcc aag ccc agc att cgg tgc ttc att aaa ccc acc gag aca ctc Ser Ala Lys Pro Ser Ile Arg Cys Phe Ile Lys Pro Thr Glu Thr Leu 360 365 370 | 1277 |
| gag cgg tcc ctt gag atg aac aag cac aag ggc aag agg cgg gtg caa Glu Arg Ser Leu Glu Met Asn Lys His Lys Gly Lys Arg Arg Val Gln 375 380 385 | 1325 |
| aag aga ccc aac tac aaa aac gtt ggg gaa gaa gaa gat gag gag aaa Lys Arg Pro Asn Tyr Lys Asn Val Gly Glu Glu Glu Asp Glu Glu Lys 390 395 400 | 1373 |
| ggg ccc acc gag gat gcc caa gaa gac gcc gag aag gct aaa ggt aca Gly Pro Thr Glu Asp Ala Gln Glu Asp Ala Glu Lys Ala Lys Gly Thr 405 410 415 420 | 1421 |
| gag ggt ggt tca aaa ggc atc aag acg agt ggg gag agt gaa gag atc Glu Gly Gly Ser Lys Gly Ile Lys Thr Ser Gly Glu Ser Glu Glu Ile 425 430 435 | 1469 |
| gag atg gtg atc atg gag cgt agc aag ctc tca gag ctg gcc gcc agc Glu Met Val Ile Met Glu Arg Ser Lys Leu Ser Glu Leu Ala Ala Ser 440 445 450 | 1517 |

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|---|------|
| acc tcc gtg cag gag cag aac acc acg gac gag gag aaa agc gcc gcc | 1565 |
| Thr Ser Val Gln Glu Gln Asn Thr Thr Asp Glu Glu Lys Ser Ala Ala | |
| 455 460 465 | |
| gcc acc tgc tct gag agc acg caa tgg agc aga ccc ttc ctg gat atg | 1613 |
| Ala Thr Cys Ser Glu Ser Thr Gln Trp Ser Arg Pro Phe Leu Asp Met | |
| 470 475 480 | |
| gtg tac cac gcg ctg gac agc ccg gat gat gat tac cat gcc ctg ttc | 1661 |
| Val Tyr His Ala Leu Asp Ser Pro Asp Asp Asp Tyr His Ala Leu Phe | |
| 485 490 495 500 | |
| gtg ctc tgc ctc ctc tat gcc atg tct cat aat aaa ggc atg gat cct | 1709 |
| Val Leu Cys Leu Leu Tyr Ala Met Ser His Asn Lys Gly Met Asp Pro | |
| 505 510 515 | |
| gaa aaa tta gag cga atc cag ctc ccc gtg cca aat gcg gcc gag aag | 1757 |
| Glu Lys Leu Glu Arg Ile Gln Leu Pro Val Pro Asn Ala Ala Glu Lys | |
| 520 525 530 | |
| acc acc tac aac cac ccg cta gct gaa aga ctc atc agg atc atg aac | 1805 |
| Thr Thr Tyr Asn His Pro Leu Ala Glu Arg Leu Ile Arg Ile Met Asn | |
| 535 540 545 | |
| aac gct gcc cag cca gat ggg aag atc cgg ctg gcg acg ctg gag ctg | 1853 |
| Asn Ala Ala Gln Pro Asp Gly Lys Ile Arg Leu Ala Thr Leu Glu Leu | |
| 550 555 560 | |
| agc tgc ctg ctt ctg aag cag caa gtc ctg atg agt gct ggc tgc atc | 1901 |
| Ser Cys Leu Leu Leu Lys Gln Gln Val Leu Met Ser Ala Gly Cys Ile | |
| 565 570 575 580 | |
| atg aag gac gtg cac ctg gcc tgc ctg gag ggt gcg aga gaa gaa agt | 1949 |
| Met Lys Asp Val His Leu Ala Cys Leu Glu Gly Ala Arg Glu Glu Ser | |
| 585 590 595 | |
| gtt cac ctt gta cga cat ttt tat aag gga gaa gac att ttt ttg gac | 1997 |
| Val His Leu Val Arg His Phe Tyr Lys Gly Glu Asp Ile Phe Leu Asp | |
| 600 605 610 | |
| atg ttt gaa gat gag tat agg agc atg aca atg aag ccc atg aac gtg | 2045 |
| Met Phe Glu Asp Glu Tyr Arg Ser Met Thr Met Lys Pro Met Asn Val | |
| 615 620 625 | |
| gaa tat ctc atg atg gac gcc tcc atc ctg ctg ccc cca aca ggc acg | 2093 |
| Glu Tyr Leu Met Met Asp Ala Ser Ile Leu Leu Pro Pro Thr Gly Thr | |
| 630 635 640 | |
| cca ctg acg ggc att gac ttc gtg aag cgg ctg ccg tgt ggc gat gtg | 2141 |
| Pro Leu Thr Gly Ile Asp Phe Val Lys Arg Leu Pro Cys Gly Asp Val | |
| 645 650 655 660 | |
| gag aag acc cgg cgg gcc atc cgg gtg ttc ttc atg ctg cgt tcc ctg | 2189 |
| Glu Lys Thr Arg Arg Ala Ile Arg Val Phe Phe Met Leu Arg Ser Leu | |
| 665 670 675 | |
| tca ctg caa ttg cga ggg gag cct gag aca cag ttg ccg ctg act cgg | 2237 |
| Ser Leu Gln Leu Arg Gly Glu Pro Glu Thr Gln Leu Pro Leu Thr Arg | |
| 680 685 690 | |
| gag gag gac ctg atc aag act gat gat gtc ctg gat ctg aat aac agc | 2285 |
| Glu Glu Asp Leu Ile Lys Thr Asp Asp Val Leu Asp Leu Asn Asn Ser | |
| 695 700 705 | |

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|---|------|
| gac ttg att gca tgt aca gtg atc acc aag gat ggc ggc atg gtc cag Asp Leu Ile Ala Cys Thr Val Ile Thr Lys Asp Gly Gly Met Val Gln 710 715 720 | 2333 |
| cga ttc ctg gct gtg gat att tac cag atg agt ttg gtg gag cct gat Arg Phe Leu Ala Val Asp Ile Tyr Gln Met Ser Leu Val Glu Pro Asp 725 730 735 740 | 2381 |
| gtg tcc agg ctt ggc tgg gga gtg gtc aag ttt gca ggc cta ttg cag Val Ser Arg Leu Gly Trp Gly Val Val Lys Phe Ala Gly Leu Leu Gln 745 750 755 | 2429 |
| gac atg cag gtg act ggc gtg gag gac gac agc cgt gcc ctg aac atc Asp Met Gln Val Thr Gly Val Glu Asp Asp Ser Arg Ala Leu Asn Ile 760 765 770 | 2477 |
| acc atc cac aag cct gcg tcc agc ccc cat tcc aag ccc ttc ccc atc Thr Ile His Lys Pro Ala Ser Ser Pro His Ser Lys Pro Phe Pro Ile 775 780 785 | 2525 |
| ctc cag gcc acc ttc atc ttc tca gac cac atc cgc tgc atc atc gcc Leu Gln Ala Thr Phe Ile Phe Ser Asp His Ile Arg Cys Ile Ile Ala 790 795 800 | 2573 |
| aag cag cgc ctg gcc aaa ggc cgc atc cag gca agg cgc atg aag atg Lys Gln Arg Leu Ala Lys Gly Arg Ile Gln Ala Arg Arg Met Lys Met 805 810 815 820 | 2621 |
| cag aga ata gct gcc ctc ctg gac ctc cca atc cag ccc acc act gaa Gln Arg Ile Ala Ala Leu Leu Asp Leu Pro Ile Gln Pro Thr Thr Glu 825 830 835 | 2669 |
| gtc ctg ggg ttt gga ctc ggc tcc tcc acc tcc act cag cac ctg cct Val Leu Gly Phe Gly Leu Gly Ser Ser Thr Ser Thr Gln His Leu Pro 840 845 850 | 2717 |
| ttc cgc ttc tac gac cag ggg cgc cgg ggc agc agc gac ccc aca gtg Phe Arg Phe Tyr Asp Gln Gly Arg Arg Gly Ser Ser Asp Pro Thr Val 855 860 865 | 2765 |
| cag cgc tcc gtg ttt gca tcg gtg gac aag gtg cca ggc ttc gcc gtg Gln Arg Ser Val Phe Ala Ser Val Asp Lys Val Pro Gly Phe Ala Val 870 875 880 | 2813 |
| gcc cag tgc ata aac cag cac agc tcc ccg tcc ctg tcc tca cag tcg Ala Gln Cys Ile Asn Gln His Ser Ser Pro Ser Leu Ser Ser Gln Ser 885 890 895 900 | 2861 |
| cca ccc tcc gcc agc ggg agc ccc agc ggc agc ggg agc acc agc cac Pro Pro Ser Ala Ser Gly Ser Pro Ser Gly Ser Gly Ser Thr Ser His 905 910 915 | 2909 |
| tgc gac tct gga ggc acc agc tcg tcc tcc acc ccc tcc aca gcc cag Cys Asp Ser Gly Gly Thr Ser Ser Ser Ser Thr Pro Ser Thr Ala Gln 920 925 930 | 2957 |
| agt cca gca gat gcc ccc atg agt cca gaa ctg cct aag cct cac ctt Ser Pro Ala Asp Ala Pro Met Ser Pro Glu Leu Pro Lys Pro His Leu 935 940 945 | 3005 |
| cct gac cag ttg gta atc gtc aac gaa acg gaa gca gac tct aag ccc Pro Asp Gln Leu Val Ile Val Asn Glu Thr Glu Ala Asp Ser Lys Pro 950 955 960 | 3053 |

agc aag aac gtg gcc agg agc gca gcc gtg gag aca gcc agc ctg tcc 3101
 Ser Lys Asn Val Ala Arg Ser Ala Ala Val Glu Thr Ala Ser Leu Ser
 965 970 975 980
 ccc agc ctc gtc cct gcc cgg cag ccc acc att tcc ctg ctc tgc gag 3149
 Pro Ser Leu Val Pro Ala Arg Gln Pro Thr Ile Ser Leu Leu Cys Glu
 985 990 995
 gac acg gct gac acg ctg agc gtc gaa tcg ctg acc ctt gtc ccc cca 3197
 Asp Thr Ala Asp Thr Leu Ser Val Glu Ser Leu Thr Leu Val Pro Pro
 1000 1005 1010
 gtt gac ccc cac agc ctc cgc agc ctc acc ggc atg ccc ccg ctg tcc 3245
 Val Asp Pro His Ser Leu Arg Ser Leu Thr Gly Met Pro Pro Leu Ser
 1015 1020 1025
 acg ccg gct gcc gcc tgc aca gag ccc gtg ggc gaa gag gct gca tgt 3293
 Thr Pro Ala Ala Ala Cys Thr Glu Pro Val Gly Glu Glu Ala Ala Cys
 1030 1035 1040
 gct gag cct gtg ggc acc gct gag gac tga 3323
 Ala Glu Pro Val Gly Thr Ala Glu Asp *
 1045 1050

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 <213> Homo sapiens

<220>
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 <222> (388)..(507)

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 acgatcgccct attaatattgg tttttaagtc cagatgaaga accttgaaaa tagccaaaga 120
 gccaaaaata ctgagtaact tcacattcag agggactgtt tcttctctct atatatagca 180
 agtcaaaaat agacatctcg gattctgggc cccagcctc atctttgtac tcaccttcct 240
 tcaaattcca ccatttacac cctcggagcc cctgttttat ctgctttag atttctctga 300
 cacctgccaa ttggcagctc cacgtcctcc tcaacatttt tactctttca ttaaggtgta 360
 aggagaattc aacaccattg ggcacaa atg cat gaa tgc aat gtc cat aca 411
 Met His Glu Cys Asn Val His Thr
 1 5
 tac gcc tct tta ttt tgc ctt ttt ctg ctt cat act ggt aag ctt tgc 459
 Tyr Ala Ser Leu Phe Cys Leu Phe Leu Leu His Thr Gly Lys Leu Cys
 10 15 20
 tgt cta aat tct cac cgg cac ttt cat tgc ata aaa tat tcc aaa tga 507
 Cys Leu Asn Ser His Arg His Phe His Cys Ile Lys Tyr Ser Lys *
 25 30 35 40
 ggccatgctc agcgttcaga actactccct gtaccaccag ccatatttca acaatgtggg 567

aaccgtttcc tatagactgg ggtctggagt tctcagtac aaggagaata atgtaaacaat 627
aagatgacga tgataatgaa gaaataactct ggacggcttt tatcacctag gatccacagg 687
aagcctgccca agaggggcaga agcacattcc atcagcagag ggcacattat caatgcagcc 747
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tccggaacgg tactcccagg cgtacggctt cataaa 843

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<213> Homo sapiens

<220>
<221> CDS
<222> (251)..(931)

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ggcatgggtgg catgtgcctg tagtcccagc tactcgggag gcgggggcgt gggagtcgct 120
tgagcctggg aggtgtaggt tgcagtgagc cgggatcgca ccactgcact ccagcctggg 180
caacggctgg ctacggttta aacttaagct tccggaattc ccgggtcgac gatttcgtcc 240
gcggacgaag atg gcg acc gcc atg tac ttg gag cac tat ctg gac agt 289
Met Ala Thr Ala Met Tyr Leu Glu His Tyr Leu Asp Ser
1 5 10
atc gag aac ctt ccc tgc gaa ctt cag agg aac ttc cag ctg atg cga 337
Ile Glu Asn Leu Pro Cys Glu Leu Gln Arg Asn Phe Gln Leu Met Arg
15 20 25
gag ctg gac cag agg acg gaa gat aag aaa gca gag att gac atc ctg 385
Glu Leu Asp Gln Arg Thr Glu Asp Lys Lys Ala Glu Ile Asp Ile Leu
30 35 40 45
gct gca gag tac atc tcc acg gtg aag acg ctg tct cca gac cag cgc 433
Ala Ala Glu Tyr Ile Ser Thr Val Lys Thr Leu Ser Pro Asp Gln Arg
50 55 60
gtg gag cgc ctg cag aag atc cag aac gcc tac agc aag tgc aag gaa 481
Val Glu Arg Leu Gln Lys Ile Gln Asn Ala Tyr Ser Lys Cys Lys Glu
65 70 75
tac agt gac gac aaa gtg cag ctg gcc atg cag acc tac gag atg gtg 529
Tyr Ser Asp Asp Lys Val Gln Leu Ala Met Gln Thr Tyr Glu Met Val
80 85 90
gat aaa cac att cga agg ctt gat gca gac ctg gcg cgc ttt gaa gca 577
Asp Lys His Ile Arg Arg Leu Asp Ala Asp Leu Ala Arg Phe Glu Ala
95 100 105
gat ctg aag gac aag atg gag ggc agt gat ttt gaa agc tcc gga ggg 625
Asp Leu Lys Asp Lys Met Glu Gly Ser Asp Phe Glu Ser Ser Gly Gly
110 115 120 125

cga ggg tta aaa aaa ggc ctg cgt cag aaa gaa aaa aga ggg tcc cgg 673
 Arg Gly Leu Lys Lys Gly Leu Arg Gln Lys Glu Lys Arg Gly Ser Arg
 130 135 140

ggc cga ggc agg agg aca tca gag gaa gac aca cca aag aaa aag aag 721
 Gly Arg Gly Arg Arg Thr Ser Glu Glu Asp Thr Pro Lys Lys Lys Lys
 145 150 155

cac aaa gga ggg tct gag ttc act gac acc atc ctg tcc gtg cac ccc 769
 His Lys Gly Gly Ser Glu Phe Thr Asp Thr Ile Leu Ser Val His Pro
 160 165 170

tct gat gtg ctg gac atg ccc gtg gac cca aac gaa ccc acg tac tgc 817
 Ser Asp Val Leu Asp Met Pro Val Asp Pro Asn Glu Pro Thr Tyr Cys
 175 180 185

ctg tgc cac cag gtc tcc tat ggg gag atg att ggc tgt gac aat cca 865
 Leu Cys His Gln Val Ser Tyr Gly Glu Met Ile Gly Cys Asp Asn Pro
 190 195 200 205

gac tgt cca att gag tgg ttt cac ttt gcc tgc gtg gac ctt acc acg 913
 Asp Cys Pro Ile Glu Trp Phe His Phe Ala Cys Val Asp Leu Thr Thr
 210 215 220

aaa ccc aaa gga aaa tga tttcat ttaaataaaa acctgtagtc tgggcaacat 967
 Lys Pro Lys Gly Lys *
 225

cgggagaccc caactctaca aaaaatacaa aaattagtgct ctgtcctctt agccacagtg 1027
 tgtgctgccc cactagggac aggaggatgg tgagcaacgt gttgttgaca gaggccaatg 1087
 tagaccactc tttaagtagc tagatttctg tatactctgtc agttatttta tgtgtcaaca 1147
 tatagtgtgc atatattcat tgtaattat gtggccacat ttattaaata gacatgtcat 1207
 ttaacttgaa gttttttgag atactttatt taaagcattc tcccactgac accctccctg 1267
 ccaaagggtgt tgtataccct ccaaagagat cgtagcatta cctcagagga gtggcattta 1327
 gagtaaagag aaaatgctca aatgccacgt agcctctctc cagatgatct ctcagaggga 1387
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 ccggatcggt caagcagt 1465

<210> 647
 <211> 5804
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (88) .. (3927)

<400> 647
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 tacttggtca ctggagagag tgggcac atg cct gcc gtg cgg gtt tgg gac 111
 Met Pro Ala Val Arg Val Trp Asp
 1 5

| | |
|---|-----|
| gtg gca gag cac agc cag gtg gcc gag ctg cag gag cac aag tat ggt | 159 |
| Val Ala Glu His Ser Gln Val Ala Glu Leu Gln Glu His Lys Tyr Gly | |
| 10 15 20 | |
| gtg gct tgt gtg gcc ttc tct cct agc gcc aag tac att gtc tct gtg | 207 |
| Val Ala Cys Val Ala Phe Ser Pro Ser Ala Lys Tyr Ile Val Ser Val | |
| 25 30 35 40 | |
| ggc tac cag cat gac atg atc gtc aac gtg tgg gcc tgg aag aaa aac | 255 |
| Gly Tyr Gln His Asp Met Ile Val Asn Val Trp Ala Trp Lys Lys Asn | |
| 45 50 55 | |
| att gtg gtg gcc tcc aac aag gtg tcc agt cgg gtg aca gca gtg tcc | 303 |
| Ile Val Val Ala Ser Asn Lys Val Ser Ser Arg Val Thr Ala Val Ser | |
| 60 65 70 | |
| ttc tct gag gat tgc agc tac ttt gtc act gca ggc aac cga cac atc | 351 |
| Phe Ser Glu Asp Cys Ser Tyr Phe Val Thr Ala Gly Asn Arg His Ile | |
| 75 80 85 | |
| aaa ttc tgg tat ctc gat gac agc aag acc tca aag gtg aat gcc act | 399 |
| Lys Phe Trp Tyr Leu Asp Asp Ser Lys Thr Ser Lys Val Asn Ala Thr | |
| 90 95 100 | |
| gtg ccc ttg ctg ggc cgc tca ggg ctg ctg gga gag cta cgg aac aac | 447 |
| Val Pro Leu Leu Gly Arg Ser Gly Leu Leu Gly Glu Leu Arg Asn Asn | |
| 105 110 115 120 | |
| cta ttc act gat gtg gcc tgt ggc aga gga aaa aag gcg gac agt acc | 495 |
| Leu Phe Thr Asp Val Ala Cys Gly Arg Gly Lys Lys Ala Asp Ser Thr | |
| 125 130 135 | |
| ttc tgc atc acg tcc tca ggg ctg ctg tgc gag ttc agt gat cga agg | 543 |
| Phe Cys Ile Thr Ser Ser Gly Leu Leu Cys Glu Phe Ser Asp Arg Arg | |
| 140 145 150 | |
| ctt ttg gac aag tgg gtg gag ctg agg gtc tac ccc gag gtg aag gat | 591 |
| Leu Leu Asp Lys Trp Val Glu Leu Arg Val Tyr Pro Glu Val Lys Asp | |
| 155 160 165 | |
| agt aac cag gcc tgc ctg ccc ccc agt tcc ttt att acc tgc tcc tca | 639 |
| Ser Asn Gln Ala Cys Leu Pro Pro Ser Ser Phe Ile Thr Cys Ser Ser | |
| 170 175 180 | |
| gac aac acc atc cgc ctg tgg aac aca gag agc tcc ggg gtg cat ggc | 687 |
| Asp Asn Thr Ile Arg Leu Trp Asn Thr Glu Ser Ser Gly Val His Gly | |
| 185 190 195 200 | |
| tcc acc ctc cac cga aac atc ctc agc agt gac ctc att aaa atc atc | 735 |
| Ser Thr Leu His Arg Asn Ile Leu Ser Ser Asp Leu Ile Lys Ile Ile | |
| 205 210 215 | |
| tat gtg gat ggg aac acc cag gcc ctg ctg gac aca gag ctg cct gga | 783 |
| Tyr Val Asp Gly Asn Thr Gln Ala Leu Leu Asp Thr Glu Leu Pro Gly | |
| 220 225 230 | |
| gga gac aaa gct gat gca tcc ctg ttg gat ccc cgc gtg ggc atc cgc | 831 |
| Gly Asp Lys Ala Asp Ala Ser Leu Leu Asp Pro Arg Val Gly Ile Arg | |
| 235 240 245 | |
| tcg gtg tgt gtc agc ccc aat gga cag cat cta gca tca ggg gac cgt | 879 |
| Ser Val Cys Val Ser Pro Asn Gly Gln His Leu Ala Ser Gly Asp Arg | |
| 250 255 260 | |

| | |
|---|------|
| atg ggc aca ctt agg gtg cac gaa ctt cag tcc ctg agt gag atg ctg | 927 |
| Met Gly Thr Leu Arg Val His Glu Leu Gln Ser Leu Ser Glu Met Leu | |
| 265 270 275 280 | |
| aag gtg gag gcc cat gac tct gag att ctg tgc ctg gag tat tct aag | 975 |
| Lys Val Glu Ala His Asp Ser Glu Ile Leu Cys Leu Glu Tyr Ser Lys | |
| 285 290 295 | |
| cca gac aca ggt ctg aaa ctg cta gca tgc gcg agc cgg gac cgg ctg | 1023 |
| Pro Asp Thr Gly Leu Lys Leu Leu Ala Ser Ala Ser Arg Asp Arg Leu | |
| 300 305 310 | |
| atc cat gtg ctg gat gcc ggg cgg gag tac agc cta cag cag acg ctg | 1071 |
| Ile His Val Leu Asp Ala Gly Arg Glu Tyr Ser Leu Gln Gln Thr Leu | |
| 315 320 325 | |
| gac gaa cac tca tcc tcc atc act gct gtc aag ttt gca gcc agt gat | 1119 |
| Asp Glu His Ser Ser Ser Ile Thr Ala Val Lys Phe Ala Ala Ser Asp | |
| 330 335 340 | |
| ggg caa gtc cgc atg atc agc tgt gga gca gac aag agc atc tac ttc | 1167 |
| Gly Gln Val Arg Met Ile Ser Cys Gly Ala Asp Lys Ser Ile Tyr Phe | |
| 345 350 355 360 | |
| cgc act gcg cag aag tct gga gat gga gtg cag ttc aca cgg aca cac | 1215 |
| Arg Thr Ala Gln Lys Ser Gly Asp Gly Val Gln Phe Thr Arg Thr His | |
| 365 370 375 | |
| cac gtg gtg cgg aag acg acc ctc tat gac atg gat gtg gag ccc agc | 1263 |
| His Val Val Arg Lys Thr Thr Leu Tyr Asp Met Asp Val Glu Pro Ser | |
| 380 385 390 | |
| tgg aag tac acg gct atc ggc tgc cag gac cga aat att cgg ata ttt | 1311 |
| Trp Lys Tyr Thr Ala Ile Gly Cys Gln Asp Arg Asn Ile Arg Ile Phe | |
| 395 400 405 | |
| aac atc agc agt gga aag cag aag aag ctg ttt aaa ggg tca cag ggt | 1359 |
| Asn Ile Ser Ser Gly Lys Gln Lys Lys Leu Phe Lys Gly Ser Gln Gly | |
| 410 415 420 | |
| gag gac ggc aca ctc att aag gtg cag aca gac ccc tca ggg atc tac | 1407 |
| Glu Asp Gly Thr Leu Ile Lys Val Gln Thr Asp Pro Ser Gly Ile Tyr | |
| 425 430 435 440 | |
| att gcc acc agc tgt tct gac aag aat ctc tcc att ttt gac ttc tcc | 1455 |
| Ile Ala Thr Ser Cys Ser Asp Lys Asn Leu Ser Ile Phe Asp Phe Ser | |
| 445 450 455 | |
| tca ggc gag tgc gtg gcc acc atg ttt ggc cac tca gag att gtc act | 1503 |
| Ser Gly Glu Cys Val Ala Thr Met Phe Gly His Ser Glu Ile Val Thr | |
| 460 465 470 | |
| ggc atg aaa ttt agt aat gat tgt aaa cat ctc atc tct gtg tct ggg | 1551 |
| Gly Met Lys Phe Ser Asn Asp Cys Lys His Leu Ile Ser Val Ser Gly | |
| 475 480 485 | |
| gac agc tgc ata ttt gtg tgg cgc ctg agc tct gag atg acc atc agc | 1599 |
| Asp Ser Cys Ile Phe Val Trp Arg Leu Ser Ser Glu Met Thr Ile Ser | |
| 490 495 500 | |
| atg agg cag cgt ctg gcc gag ttg cgc cag cgt cag cgg ggc ggc aag | 1647 |
| Met Arg Gln Arg Leu Ala Glu Leu Arg Gln Arg Gln Arg Gly Gly Lys | |
| 505 510 515 520 | |

| | |
|---|------|
| cag caa gga cca tcc tct ccc caa agg gct tct gga ccc aac cgg cac Gln Gln Gly Pro Ser Ser Pro Gln Arg Ala Ser Gly Pro Asn Arg His 525 530 535 | 1695 |
| cag gcc cca tca atg ctg tct cct gga ccg gct ctc tca tca gac agt Gln Ala Pro Ser Met Leu Ser Pro Gly Pro Ala Leu Ser Ser Asp Ser 540 545 550 | 1743 |
| gac aag gag gga gaa gat gag ggg act gaa gaa gaa ctt cca gca ctg Asp Lys Glu Gly Glu Asp Glu Gly Thr Glu Glu Glu Leu Pro Ala Leu 555 560 565 | 1791 |
| ccc gtc ctt gcc aag agt acc aag aag gca ctg gcc tcg gtc ccc agc Pro Val Leu Ala Lys Ser Thr Lys Lys Ala Leu Ala Ser Val Pro Ser 570 575 580 | 1839 |
| cca gct ttg ccc cga agc ctg tcc cac tgg gag atg agt cgg gca cag Pro Ala Leu Pro Arg Ser Leu Ser His Trp Glu Met Ser Arg Ala Gln 585 590 595 600 | 1887 |
| gag tcc gtg ggg ttc ctg gac cca gct cct gca gcc aac cca gga ccc Glu Ser Val Gly Phe Leu Asp Pro Ala Pro Ala Ala Asn Pro Gly Pro 605 610 615 | 1935 |
| aga aga aga ggg cgc tgg gtt cag cca ggt gtg gaa ctg agc gtt aga Arg Arg Arg Gly Arg Trp Val Gln Pro Gly Val Glu Leu Ser Val Arg 620 625 630 | 1983 |
| tcc atg ctg gat ctg cgg cag ctg gaa aca ctg gcc cca agc ctg cag Ser Met Leu Asp Leu Arg Gln Leu Glu Thr Leu Ala Pro Ser Leu Gln 635 640 645 | 2031 |
| gac cct agc cag gac tcg ctg gcc atc atc cca tct ggt ccc agg aag Asp Pro Ser Gln Asp Ser Leu Ala Ile Ile Pro Ser Gly Pro Arg Lys 650 655 660 | 2079 |
| cat ggg cag gag gcc ctt gag act tca ctc act agc cag aat gaa aag His Gly Gln Glu Ala Leu Glu Thr Ser Leu Thr Ser Gln Asn Glu Lys 665 670 675 680 | 2127 |
| ccc cct cgg cct cag gct tcc caa cct tgt tcc tat ccc cat att atc Pro Pro Arg Pro Gln Ala Ser Gln Pro Cys Ser Tyr Pro His Ile Ile 685 690 695 | 2175 |
| cga tta ttg tca caa gag gaa ggg gtc ttt gcc caa gat ctg gaa cct Arg Leu Leu Ser Gln Glu Glu Gly Val Phe Ala Gln Asp Leu Glu Pro 700 705 710 | 2223 |
| gca ccc att gaa gat ggt att gtc tac ccg gag ccg agt gac aac ccc Ala Pro Ile Glu Asp Gly Ile Val Tyr Pro Glu Pro Ser Asp Asn Pro 715 720 725 | 2271 |
| acc atg gat acc agt gag ttc caa gtg cag gct cca gcc cgg gga act Thr Met Asp Thr Ser Glu Phe Gln Val Gln Ala Pro Ala Arg Gly Thr 730 735 740 | 2319 |
| ctg gga aga gtg tac cca ggc agc agg agc tca gaa aag cac agc cct Leu Gly Arg Val Tyr Pro Gly Ser Arg Ser Ser Glu Lys His Ser Pro 745 750 755 760 | 2367 |
| gac agt gcc tgc tct gtg gat tac agc agc agc tgc ctt tcc agc ccg Asp Ser Ala Cys Ser Val Asp Tyr Ser Ser Ser Cys Leu Ser Ser Pro 765 770 775 | 2415 |

| | |
|--|------|
| gag cac ccc act gaa gac tct gag agc acg gag ccc ctc agt gtg gat Glu His Pro Thr Glu Asp Ser Glu Ser Thr Glu Pro Leu Ser Val Asp 780 785 790 | 2463 |
| ggc atc tcc tca gac ctt gaa gag cca gct gag ggt gat gaa gaa gag Gly Ile Ser Ser Asp Leu Glu Glu Pro Ala Glu Gly Asp Glu Glu Glu 795 800 805 | 2511 |
| gaa gaa gag gag gga ggc atg ggc ccc tat ggg cta cag gag ggc agc Glu Glu Glu Glu Gly Gly Met Gly Pro Tyr Gly Leu Gln Glu Gly Ser 810 815 820 | 2559 |
| ccc cag act cca gac cag gag cag ttt cta aaa cag cac ttt gag act Pro Gln Thr Pro Asp Gln Glu Gln Phe Leu Lys Gln His Phe Glu Thr 825 830 835 840 | 2607 |
| ctg gcc agt gga gct gct cca ggg gcc cca gtg cag gtc cca gag agg Leu Ala Ser Gly Ala Ala Pro Gly Ala Pro Val Gln Val Pro Glu Arg 845 850 855 | 2655 |
| tca gag tct cgg agt atc tct tca cga ttc ctg ttg caa gta cag acc Ser Glu Ser Arg Ser Ile Ser Ser Arg Phe Leu Leu Gln Val Gln Thr 860 865 870 | 2703 |
| cgc cca ctc agg gaa cca tcc cca tcc tcc tca agc ctg gca ctg atg Arg Pro Leu Arg Glu Pro Ser Pro Ser Ser Ser Ser Leu Ala Leu Met 875 880 885 | 2751 |
| tcg aga cca gcc cag gtg cca cag gca tct ggt gag cag ccg aga ggc Ser Arg Pro Ala Gln Val Pro Gln Ala Ser Gly Glu Gln Pro Arg Gly 890 895 900 | 2799 |
| aat ggt gcc aat ccc cct gga gca ccc ccg gag gtg gaa ccg tcc tct Asn Gly Ala Asn Pro Pro Gly Ala Pro Pro Glu Val Glu Pro Ser Ser 905 910 915 920 | 2847 |
| ggc aac ccc agc ccc cag cag gca gcc tct gtg ctg ttg cca cga tgc Gly Asn Pro Ser Pro Gln Gln Ala Ala Ser Val Leu Leu Pro Arg Cys 925 930 935 | 2895 |
| cgt ctc aac cct gac agc agc tgg gct ccc aag aga gtg gcc aca gcc Arg Leu Asn Pro Asp Ser Ser Trp Ala Pro Lys Arg Val Ala Thr Ala 940 945 950 | 2943 |
| agc ccc ttt tct gga ctc cag aag gcc cag tct gtg cac agt ctg gtg Ser Pro Phe Ser Gly Leu Gln Lys Ala Gln Ser Val His Ser Leu Val 955 960 965 | 2991 |
| cca cag gaa aga cat gag gcc agt ctg cag gcc cct tca cca ggc gca Pro Gln Glu Arg His Glu Ala Ser Leu Gln Ala Pro Ser Pro Gly Ala 970 975 980 | 3039 |
| ctg ctg tct cgg gag atc gaa gct cag gat ggt ctg ggc tcc ctg ccc Leu Leu Ser Arg Glu Ile Glu Ala Gln Asp Gly Leu Gly Ser Leu Pro 985 990 995 1000 | 3087 |
| cca gct gat ggc cct ccg tct cgg cct cac tcc tat cag aac ccc acc Pro Ala Asp Gly Pro Pro Ser Arg Pro His Ser Tyr Gln Asn Pro Thr 1005 1010 1015 | 3135 |
| acc agt tcc atg gcc aag ata tcc cgc agt atc tct gtt ggg gag aac Thr Ser Ser Met Ala Lys Ile Ser Arg Ser Ile Ser Val Gly Glu Asn 1020 1025 1030 | 3183 |

| | |
|---|------|
| ctg ggc ctg gtg gct gaa cct caa gct cat gcc ccc atc cga gtc tca Leu Gly Leu Val Ala Glu Pro Gln Ala His Ala Pro Ile Arg Val Ser 1035 1040 1045 | 3231 |
| cca ctc agc aag ctg gcc ctg ccc agc cgg gct cac ctg gtc ctg gac Pro Leu Ser Lys Leu Ala Leu Pro Ser Arg Ala His Leu Val Leu Asp 1050 1055 1060 | 3279 |
| atc ccc aaa cca ctg cct gac cgt cct acc ctg gct gca ttc tct cct Ile Pro Lys Pro Leu Pro Asp Arg Pro Thr Leu Ala Ala Phe Ser Pro 1065 1070 1075 1080 | 3327 |
| gtc acc aaa ggc cgg gcc cct ggc gag gca gaa aag cct ggc ttc ccg Val Thr Lys Gly Arg Ala Pro Gly Glu Ala Glu Lys Pro Gly Phe Pro 1085 1090 1095 | 3375 |
| gtg ggc cta gga aaa gct cac agt aca act gag aga tgg gcc tgt ttg Val Gly Leu Gly Lys Ala His Ser Thr Thr Glu Arg Trp Ala Cys Leu 1100 1105 1110 | 3423 |
| ggg gag ggc acc act ccc aag cct agg aca gag tgc cag gct cat cct Gly Glu Gly Thr Thr Pro Lys Pro Arg Thr Glu Cys Gln Ala His Pro 1115 1120 1125 | 3471 |
| ggg ccc agc agc ccc tgt gcc cag caa ctg cca gtc agc agc ctc ttc Gly Pro Ser Ser Pro Cys Ala Gln Gln Leu Pro Val Ser Ser Leu Phe 1130 1135 1140 | 3519 |
| caa ggc cct gaa aac ttg cag ccc cca ccc cct gag aag act ccc aac Gln Gly Pro Glu Asn Leu Gln Pro Pro Pro Pro Glu Lys Thr Pro Asn 1145 1150 1155 1160 | 3567 |
| ccc atg gaa tgc acc aag cca ggg gca gcc ctg agc cag gac tca gag Pro Met Glu Cys Thr Lys Pro Gly Ala Ala Leu Ser Gln Asp Ser Glu 1165 1170 1175 | 3615 |
| cca gcg gtg agc ctg gag cag tgt gag cag ctg gtg gca gag ctc cgc Pro Ala Val Ser Leu Glu Gln Cys Glu Gln Leu Val Ala Glu Leu Arg 1180 1185 1190 | 3663 |
| ggc agc gtg cgc cag gca gtg cgg ctc tac cac tcg gtg gct ggc tgc Gly Ser Val Arg Gln Ala Val Arg Leu Tyr His Ser Val Ala Gly Cys 1195 1200 1205 | 3711 |
| aag atg ccc tca gca gag caa agt cgg att gcc cag ctc ctc aga gac Lys Met Pro Ser Ala Glu Gln Ser Arg Ile Ala Gln Leu Leu Arg Asp 1210 1215 1220 | 3759 |
| acc ttc tct tca gtg cga cag gag ctg gaa gct gtg gct ggg gca gtg Thr Phe Ser Ser Val Arg Gln Glu Leu Glu Ala Val Ala Gly Ala Val 1225 1230 1235 1240 | 3807 |
| ctg tcc agc cca ggc agc agc cct ggg gct gtg gga gcc gag cag aca Leu Ser Ser Pro Gly Ser Ser Pro Gly Ala Val Gly Ala Glu Gln Thr 1245 1250 1255 | 3855 |
| cag gcc ctg ctg gag caa tac tca gaa ctg ttg ctt cga gcc gtg gaa Gln Ala Leu Leu Glu Gln Tyr Ser Glu Leu Leu Leu Arg Ala Val Glu 1260 1265 1270 | 3903 |
| cgg cgt atg gaa cgc aaa ctc tga gttctggaag cctgtcccaa gtgaatgaat Arg Arg Met Glu Arg Lys Leu * 1275 1280 | 3957 |

gctccagcga ttccaaactg cagccccctct gcccctcacc aaaacctgcg gggctgcttg 4017
gagtggaaag cagggagcag tgttcagagg caaagcagcc ttcccagccg ctccctcgtgg 4077
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ccgcctgct gcgcatagg cagaggctta taaagaaatg ggttctgggc caggtgtggt 5517
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ggagttcgag atcagcctgg ccaacatggt gaaaccctgt ctctactaaa aataaaaaaa 5637
ttagetgggc gtggtggtgg gcgcctgtaa tcccagctac tcgggaggtt taggcaggag 5697
aatcgcttga accctggagg tggaggtgga ggttgcaagt agccgagatc gcgccattgc 5757
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<210> 648
 <211> 1436
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (166) .. (837)

<220>
 <221> misc_feature
 <222> (1) ... (1436)
 <223> n = a,t,c or g

<400> 648
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 ttagggattg accttggaag taaaacgcct tcaggaatta ggtagaaaag gaccatccgt 120
 tcaccaaga tcattctacc tcccatgaag ggaacgggtct tctaa atg cag ttt 174
 Met Gln Phe
 1
 tcc ttc cag cag ggt gga tgg gga gca tcg ctg gct gac agg ctg gtc 222
 Ser Phe Gln Gln Gly Gly Trp Gly Ala Ser Leu Ala Asp Arg Leu Val
 5 10 15
 aga aaa tgt gat gtt ctg aat cgt gga ttt tca ggt tac aat acc agg 270
 Arg Lys Cys Asp Val Leu Asn Arg Gly Phe Ser Gly Tyr Asn Thr Arg
 20 25 30 35
 tgg gcc aaa att atc ctt cca aga tta atc agg aaa gga aac agt ttg 318
 Trp Ala Lys Ile Ile Leu Pro Arg Leu Ile Arg Lys Gly Asn Ser Leu
 40 45 50
 gac atc cca gta gca gtt aca att ttc ttt ggg gcc aat gac agt gca 366
 Asp Ile Pro Val Ala Val Thr Ile Phe Phe Gly Ala Asn Asp Ser Ala
 55 60 65
 cta aaa gat gag aat ccc aag cag cac att ccc ctg gag gag tac gct 414
 Leu Lys Asp Glu Asn Pro Lys Gln His Ile Pro Leu Glu Glu Tyr Ala
 70 75 80
 gcg aac cta aag agc atg gtg cag tac ctg aag tcc gtg gac atc cct 462
 Ala Asn Leu Lys Ser Met Val Gln Tyr Leu Lys Ser Val Asp Ile Pro
 85 90 95
 gag aat cga gtc att ctc atc acg ccg acc cca ctt tgt gaa aca gcc 510
 Glu Asn Arg Val Ile Leu Ile Thr Pro Thr Pro Leu Cys Glu Thr Ala
 100 105 110 115
 tgg gaa gaa cag tgc atc ata caa ggt tgc aaa cta aat cgc ctg aac 558
 Trp Glu Glu Gln Cys Ile Ile Gln Gly Cys Lys Leu Asn Arg Leu Asn
 120 125 130
 tct gtt gtt ggt gaa tat gcc aat gcg tgt tta caa gtg gcc caa gac 606
 Ser Val Val Gly Glu Tyr Ala Asn Ala Cys Leu Gln Val Ala Gln Asp
 135 140 145
 tgt ggg act gac gta ctt gac ctg tgg acc ctg atg cag gac agc cag 654
 Cys Gly Thr Asp Val Leu Asp Leu Trp Thr Leu Met Gln Asp Ser Gln
 150 155 160

gac ttc tca tct tat tta tca gat gga cta cat ttg tct cca aag ggg 702
 Asp Phe Ser Ser Tyr Leu Ser Asp Gly Leu His Leu Ser Pro Lys Gly
 165 170 175

aat gaa ttt ttg ttc tcg cat ctc tgg cct ttg ata gag aaa aag gtc 750
 Asn Glu Phe Leu Phe Ser His Leu Trp Pro Leu Ile Glu Lys Lys Val
 180 185 190 195

tct tct cta cct ttg ctg ctt cct tac tgg cgg gat gta gca gaa gca 798
 Ser Ser Leu Pro Leu Leu Leu Pro Tyr Trp Arg Asp Val Ala Glu Ala
 200 205 210

aaa cct gaa tta agt ctg ctg gga gat gga gac cat tag ccaatcacag 847
 Lys Pro Glu Leu Ser Leu Leu Gly Asp Gly Asp His *
 215 220

gagacccaaa tctgcttggt atctacagaa ctcaaagttg tcaatacgtg gaggtacgct 907
 tttttcctca ggcttaaacc tttgccactg atattaataa taaaagtatt agatgatttt 967
 tcagggaagt tttatactta ggtccattgt gtttcgacag tattttattaa tgcagatatc 1027
 agtgctacag ctataaaata taccctgagc agcttggttaa ttctataaat gacaaagact 1087
 atgttttttaa aaagtcacaa ttttataaaa atgggtttttc ttacattctt ttgagaactg 1147
 tttcactcat acatacaccc acacacccca ctcaaccttg tatcaaattc caaaagtgtg 1207
 actaaaggta taaggattat catgactagg ttaaaaggat aggcaaatac cataagggtg 1267
 caagttccaa ggtattaggt ataacaaggt atctggggta accaaatgtc cttgggaatg 1327
 ggggggtggg nggggtatat ggtaggtcc ccgggttggg ttaactgccc ntcaaattta 1387
 caggtttaaa tgttttgggc cggtgagccc ctttcogttc ttggggggg 1436

<210> 649
 <211> 1183
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (118)..(252)

<220>
 <221> misc_feature
 <222> (1)..(1183)
 <223> n = a,t,c or g

<400> 649
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 agctgaaggt aagtacattt tccactaatt cctcagcttg ctaagtgtt ttggacc 117
 atg aat aga gca gct agg aac aaa tct gag aag agg tac tat tca gaa 165
 Met Asn Arg Ala Ala Arg Asn Lys Ser Glu Lys Arg Tyr Tyr Ser Glu
 1 5 10 15

ttc ctc caa ata gct cat ctt ttt aat tat ggg ctt tca tcc ttc cta 213
 Phe Leu Gln Ile Ala His Leu Phe Asn Tyr Gly Leu Ser Ser Phe Leu

| | 20 | 25 | 30 | |
|--|----|----|----|------|
| agg gag ttt att att ttt cta att aaa cta cta caa tga aggctattac | | | | 262 |
| Arg Glu Phe Ile Ile Phe Leu Ile Lys Leu Leu Gln * | | | | |
| 35 | 40 | 45 | | |
| ctttttgtct agctaaaaca atctttccta ttaatgaatt tattggcttc tctagtactc | | | | 322 |
| ttcaaattgt cattgagctc tattcaagga ctacagccag ttttttccta atagaattag | | | | 382 |
| gggtgaaaca aatcatgctt ctattatcac ttctggagtt agcccttcac ctgatcagct | | | | 442 |
| tgtctaggtg taagagtgcg ggggttttag cgccacaaag acgtgggcat gcggcagctt | | | | 502 |
| cctgaacctc aggcattggt gtctaagcaa ctccaccatc cacacgtgtg acgttacagt | | | | 562 |
| tctgggagat gcacgcacac tntctgtgcc tttctcaacc actagcttaa tcagcctcca | | | | 622 |
| ccttcctagg cagcaacacg ggggtgcagga taaacaataa ctaaaagcat actgattatc | | | | 682 |
| acatactcct gcaaagtgtt tgcacccaga aagcatgcag tcaactgccat catgaggggc | | | | 742 |
| tcacaccttt ctttggtggt ctctgtcggg gggcacatgt tacctataaa agaggcccaa | | | | 802 |
| gcattcgatt aaacagctct tctttataat tcagtttggc taagctgcct tcaaaaaact | | | | 862 |
| tgtccccaat tcttcaacta cccccccca cttttacaca cgcataatcc caacttacc | | | | 922 |
| gggcccactt ggaaacacta catacatagc atgcttgcca aaagttcaca tagggattag | | | | 982 |
| gattgcgaaa ggggtaccac aggtgggcca cagcgtcctg cgtctggacg taacacagtg | | | | 1042 |
| aggacgggct gtcattgctc tgtgatcctc gtcacgccac gcctacgacg cgagtgcctg | | | | 1102 |
| gagacggtcg gtacgctagg cattggtcac catcgctacg acacgccata cagtgcgctt | | | | 1162 |
| gccagcctct cgtgtcgcgc c | | | | 1183 |

<210> 650

<211> 1885

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1115) .. (1744)

<400> 650

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| tcctgctacc ccactctctt tcctcttctt ctttttcttc cttttcagag ctggctcctc | 120 |
| gatgactggc tgctctacct tctttttgga cttcatcttt ttctttgcgg aggccttagg | 180 |
| gtcatcactt atggggatgt attccggagc ctcaactttg actggcttct ttttacttcc | 240 |
| tttcctaggg ctgctctcca tggacctgga gggcttggag tggcctggga gggcatctcc | 300 |
| ctcctgggtg attttttttt tcttcttcac ctteccattg tgttctctgg ggctcttccg | 360 |
| cttcctgttc tgccccaagg ctgcctgttc ctcatccttc ttccccactg agcaagtgtc | 420 |

1803

Ala Lys Lys Glu Lys Cys Phe Glu Val Arg Cys Asp Pro Glu Ile Gln
 155 160 165

gaa ctg cgt cag tgg cag aag aaa ctt cgc gag gcc aag cac att cac 1660
 Glu Leu Arg Gln Trp Gln Lys Lys Leu Arg Glu Ala Lys His Ile His
 170 175 180

cag caa gtc aaa att ttc tgg gcc aag caa gaa caa aaa gtg aaa tgc 1708
 Gln Gln Val Lys Ile Phe Trp Ala Lys Gln Glu Gln Lys Val Lys Cys
 185 190 195

aaa atg gag gac gat cag tac ctg cag cca aga tga aaat tccatcatct 1758
 Lys Met Glu Asp Asp Gln Tyr Leu Gln Pro Arg *
 200 205 210

taaccatagc taagacgtat ctttgcccat tcgacacaag ttaccttgtg caaggaaaat 1818

gtccaaatga tgctctctct cttgtgattt ctttaacaag acttggaaaca tgtgcaaaaa 1878

aaaaaaaa 1885

<210> 651
 <211> 635
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (115)..(363)

<400> 651
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tcaccgtacg gtcgatcgcg acccgaggag gcggaagagc ggcgccgtca ctcc atg 117
 Met
 1

gat tcc ttt ggg caa ccc aga cca gaa gat aat cag tca gta gtc aga 165
 Asp Ser Phe Gly Gln Pro Arg Pro Glu Asp Asn Gln Ser Val Val Arg
 5 10 15

aga atg caa aag aaa tac tgg aaa act aaa cag gtc ttt atc aaa gca 213
 Arg Met Gln Lys Lys Tyr Trp Lys Thr Lys Gln Val Phe Ile Lys Ala
 20 25 30

aca gga aaa aaa gag gat gag cac ttg gtg gcg tct gat gct gaa ctg 261
 Thr Gly Lys Lys Glu Asp Glu His Leu Val Ala Ser Asp Ala Glu Leu
 35 40 45

gat gct aaa ctt gag gtt ttt cac tct gtt caa gag aca tgc act gaa 309
 Asp Ala Lys Leu Glu Val Phe His Ser Val Gln Glu Thr Cys Thr Glu
 50 55 60 65

ctt ctg aag ata atc gag aaa tac cag cta aga ctc aat ggt atg aaa 357
 Leu Leu Lys Ile Ile Glu Lys Tyr Gln Leu Arg Leu Asn Gly Met Lys
 70 75 80

tca tag ttatctatct gataattccc atttaaaata aataattagca ttttttaaaa 413
 Ser *

tgaaagattt aatgtaaaaa caattttgtg aatagcttct tatggcaaaa tatgaatatt 473
 tacagctacc tgttctcaaa ggccccagta ttctctcttc tttcctcagt taatcaaata 533
 ctctgacca gatttatatt ttgctgatat ttttttctt tgagacaggg tctttctctg 593
 cactccagcc taggcaacag agcaagactc cgtctcaaaa aa 635

<210> 652
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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (407) .. (2746)

<400> 652
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 tctgggacat ccagcacagt gagcggcccc tgggcaccac cagaaaacat ttgtgggtga 180
 acgtggagtg atgacctgt ggacactgtc tttccagggg ttcttgagac ctctgcagag 240
 tctggggggc aggtctctta gtggaaactg caggatcttc cttctgacct ctgcttgctt 300
 cgccccagca gctccggttg agtccacaga tgccagctca gcttccagct tggggaagag 360
 tgggggtgtc agcaggagag cctgaggggt gaggcccagc gtgaac atg gca gct 415
 Met Ala Ala
 1
 aat ggg gac tct ccc cca tgg tcc ccg gcc ctg gct gca gag gga cgt 463
 Asn Gly Asp Ser Pro Pro Trp Ser Pro Ala Leu Ala Ala Glu Gly Arg
 5 10 15
 ggc agc tca tgt gag gct tca gtg tca ttt gag gac gtg act gtg gac 511
 Gly Ser Ser Cys Glu Ala Ser Val Ser Phe Glu Asp Val Thr Val Asp
 20 25 30 35
 ttc agc aag gag gag tgg cag cac ttg gac cct gcc cag aga cgc ctg 559
 Phe Ser Lys Glu Glu Trp Gln His Leu Asp Pro Ala Gln Arg Arg Leu
 40 45 50
 tac tgg gat gtg aca cta gag aac tac agc cac ctg ctc tca gtg ggg 607
 Tyr Trp Asp Val Thr Leu Glu Asn Tyr Ser His Leu Leu Ser Val Gly
 55 60 65
 tac caa att ccc aag tca gag gct gcc ttc aag ttg gag caa gga gag 655
 Tyr Gln Ile Pro Lys Ser Glu Ala Ala Phe Lys Leu Glu Gln Gly Glu
 70 75 80
 ggg cca tgg atg ctg gag ggg gaa gcc cca cat cag agc tgt tca ggt 703
 Gly Pro Trp Met Leu Glu Gly Glu Ala Pro His Gln Ser Cys Ser Gly
 85 90 95
 gag gct att ggg aaa atg cag caa cag gga att cct gga gga att ttc 751
 Glu Ala Ile Gly Lys Met Gln Gln Gln Gly Ile Pro Gly Gly Ile Phe
 100 105 110 115

| | |
|---|------|
| ttc cac tgt gag aga ttt gat caa ccc ata gga gaa gat tca tta tgt | 799 |
| Phe His Cys Glu Arg Phe Asp Gln Pro Ile Gly Glu Asp Ser Leu Cys | |
| 120 125 130 | |
| tct att tta gaa gaa ctg tgg caa gat aat gac cag cta gag caa cgt | 847 |
| Ser Ile Leu Glu Glu Leu Trp Gln Asp Asn Asp Gln Leu Glu Gln Arg | |
| 135 140 145 | |
| cag gaa aac cag aat aac ctt tta agt cat gtg aaa gta ttg att aag | 895 |
| Gln Glu Asn Gln Asn Asn Leu Leu Ser His Val Lys Val Leu Ile Lys | |
| 150 155 160 | |
| gag agg ggc tat gaa cat aaa aac att gaa aaa ata att cat gtg act | 943 |
| Glu Arg Gly Tyr Glu His Lys Asn Ile Glu Lys Ile Ile His Val Thr | |
| 165 170 175 | |
| acc aag ctt gtt cct tca att aaa aga ctc cat aac tgt gac aca att | 991 |
| Thr Lys Leu Val Pro Ser Ile Lys Arg Leu His Asn Cys Asp Thr Ile | |
| 180 185 190 195 | |
| ttg aag cat act tta aac tca cat aat cat aat aga aac agt gca aca | 1039 |
| Leu Lys His Thr Leu Asn Ser His Asn His Asn Arg Asn Ser Ala Thr | |
| 200 205 210 | |
| aag aac ctt ggc aag att ttt gga aat ggt aac aat ttc ccc cat agc | 1087 |
| Lys Asn Leu Gly Lys Ile Phe Gly Asn Gly Asn Asn Phe Pro His Ser | |
| 215 220 225 | |
| cct tcc tct act aag aat gag aat gct aaa aca gga gca aat tcc tgt | 1135 |
| Pro Ser Ser Thr Lys Asn Glu Asn Ala Lys Thr Gly Ala Asn Ser Cys | |
| 230 235 240 | |
| gaa cat gac cac tat gaa aaa cat ctc agc cac aaa caa gct ccc acc | 1183 |
| Glu His Asp His Tyr Glu Lys His Leu Ser His Lys Gln Ala Pro Thr | |
| 245 250 255 | |
| cac cat cag aaa att cat cct gag gag aag ctt tat gtg tgt act gaa | 1231 |
| His His Gln Lys Ile His Pro Glu Glu Lys Leu Tyr Val Cys Thr Glu | |
| 260 265 270 275 | |
| tgt gta atg ggc ttc act cag aag tca cat ctg ttt gag cat cag aga | 1279 |
| Cys Val Met Gly Phe Thr Gln Lys Ser His Leu Phe Glu His Gln Arg | |
| 280 285 290 | |
| att cat gct gga gaa aag tcc cgt gaa tgt gac aaa agc aac aaa gtc | 1327 |
| Ile His Ala Gly Glu Lys Ser Arg Glu Cys Asp Lys Ser Asn Lys Val | |
| 295 300 305 | |
| ttc ccc cag aaa ccc cag gtt gat gta cat cca agt gtt tat aca gga | 1375 |
| Phe Pro Gln Lys Pro Gln Val Asp Val His Pro Ser Val Tyr Thr Gly | |
| 310 315 320 | |
| gaa aaa ccc tat ctg tgt act caa tgt ggg aaa gtc ttt acc ctc aaa | 1423 |
| Glu Lys Pro Tyr Leu Cys Thr Gln Cys Gly Lys Val Phe Thr Leu Lys | |
| 325 330 335 | |
| tca aac ctc att aca cat caa aaa att cat acc ggg cag aaa ccc tac | 1471 |
| Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Gly Gln Lys Pro Tyr | |
| 340 345 350 355 | |
| aaa tgc agt gaa tgt gga aaa gcc ttt ttc cag aga tca gac ctc ttt | 1519 |
| Lys Cys Ser Glu Cys Gly Lys Ala Phe Phe Gln Arg Ser Asp Leu Phe | |
| 360 365 370 | |

| | |
|---|------|
| aga cat ctg aga att cat aca gga gaa aaa cct tat gaa tgc agt gaa Arg His Leu Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Glu 375 380 385 | 1567 |
| tgt gga aaa ggc ttc tcc cag aac tca gac ctc agt ata cat cag aaa Cys Gly Lys Gly Phe Ser Gln Asn Ser Asp Leu Ser Ile His Gln Lys 390 395 400 | 1615 |
| act cat acc gga gag aaa cac tat gaa tgc aat gaa tgt ggg aag gct Thr His Thr Gly Glu Lys His Tyr Glu Cys Asn Glu Cys Gly Lys Ala 405 410 415 | 1663 |
| ttc aca aga aaa tca gca ctc agg atg cat cag aga atc cac acg gga Phe Thr Arg Lys Ser Ala Leu Arg Met His Gln Arg Ile His Thr Gly 420 425 430 435 | 1711 |
| gag aaa cct tat gta tgc gct gac tgt ggg aag gcc ttc atc cag aaa Glu Lys Pro Tyr Val Cys Ala Asp Cys Gly Lys Ala Phe Ile Gln Lys 440 445 450 | 1759 |
| tca cat ttc aac aca cat cag aga att cat act gga gaa aag ccg tat Ser His Phe Asn Thr His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr 455 460 465 | 1807 |
| gaa tgc agt gac tgt ggg aaa tcc ttc act aag aag tca caa ctc cat Glu Cys Ser Asp Cys Gly Lys Ser Phe Thr Lys Lys Ser Gln Leu His 470 475 480 | 1855 |
| gtg cat caa aga att cac acc gga gag aaa ccc tat ata tgt aca gaa Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Ile Cys Thr Glu 485 490 495 | 1903 |
| tgt gga aag gtc ttc act cac agg aca aac ctc acc aca cat cag aaa Cys Gly Lys Val Phe Thr His Arg Thr Asn Leu Thr Thr His Gln Lys 500 505 510 515 | 1951 |
| act cat act ggg gaa aaa ccc tat atg tgt gct gaa tgt gga aag gct Thr His Thr Gly Glu Lys Pro Tyr Met Cys Ala Glu Cys Gly Lys Ala 520 525 530 | 1999 |
| ttt act gac cag tca aat ctc att aaa cac cag aaa act cac act gga Phe Thr Asp Gln Ser Asn Leu Ile Lys His Gln Lys Thr His Thr Gly 535 540 545 | 2047 |
| gag aaa ccc tat aag tgc aat ggc tgt gga aaa gcc ttc ata tgg aag Glu Lys Pro Tyr Lys Cys Asn Gly Cys Gly Lys Ala Phe Ile Trp Lys 550 555 560 | 2095 |
| tcg cgc ctc aaa ata cat cag aaa tct cat att gga gag aga cac tat Ser Arg Leu Lys Ile His Gln Lys Ser His Ile Gly Glu Arg His Tyr 565 570 575 | 2143 |
| gaa tgc aag gac tgc ggg aaa gcc ttc atc cag aaa tca aca cta agc Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Thr Leu Ser 580 585 590 595 | 2191 |
| gtg cat cag aga atc cat aca gga gag aaa ccg tac gtt tgt cct gaa Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Val Cys Pro Glu 600 605 610 | 2239 |
| tgc ggg aag gcc ttt atc cag aaa tcg cac ttc att gcg cat cat aga Cys Gly Lys Ala Phe Ile Gln Lys Ser His Phe Ile Ala His His Arg 615 620 625 | 2287 |

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atc cat act gga gag aag cct tat gaa tgc agc gac tgt ggg aaa tgc      2335
Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Asp Cys Gly Lys Cys
          630                      635                      640

ttc act aag aag tca caa ctc cgt gtg cat cag aaa atc cac aca ggt      2383
Phe Thr Lys Lys Ser Gln Leu Arg Val His Gln Lys Ile His Thr Gly
          645                      650                      655

gag aag ccc aat ata tgt gct gaa tgt gga aag gcc ttc act gac cga      2431
Glu Lys Pro Asn Ile Cys Ala Glu Cys Gly Lys Ala Phe Thr Asp Arg
          660                      665                      670                      675

tca aat ctc ata aca cat cag aaa atc cac act agg gag aaa ccc tat      2479
Ser Asn Leu Ile Thr His Gln Lys Ile His Thr Arg Glu Lys Pro Tyr
          680                      685                      690

gaa tgt ggt gac tgc ggg aaa acc ttc acc tgg aag tca cgc ctc aat      2527
Glu Cys Gly Asp Cys Gly Lys Thr Phe Thr Trp Lys Ser Arg Leu Asn
          695                      700                      705

ata cat cag aag tct cat act gga gaa aga cac tat gaa tgt agt aaa      2575
Ile His Gln Lys Ser His Thr Gly Glu Arg His Tyr Glu Cys Ser Lys
          710                      715                      720

tgt ggg aaa gct ttc atc cag aaa gcc aca cta agt atg cat cag ata      2623
Cys Gly Lys Ala Phe Ile Gln Lys Ala Thr Leu Ser Met His Gln Ile
          725                      730                      735

att cat aca gga aag aaa cct tat gct tgt aca gaa tgt cag aag gcc      2671
Ile His Thr Gly Lys Lys Pro Tyr Ala Cys Thr Glu Cys Gln Lys Ala
          740                      745                      750                      755

ttt act gac aga tcg aat ctc att aaa cac cag aaa atg cat agt gga      2719
Phe Thr Asp Arg Ser Asn Leu Ile Lys His Gln Lys Met His Ser Gly
          760                      765                      770

gaa aaa cgc tat aaa gcc agt gac tga gaaag tcttcacctg gaaatcacia      2771
Glu Lys Arg Tyr Lys Ala Ser Asp *
          775                      780

ctgggtatgc atcaggtatc taatagcagg gaggaggaag gcctgttgct gcaatcattg      2831

tacaggggga aatgggtatg agagactgag gct      2864

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gcatcgagag actataagcc ctggtctgcg actggcaatc acagtgggca gcccgatttt      120

ctgctgagta ggcgctgtga tttcaga      atg tct ggg cga ggt aaa ggt ggc      171
Met Ser Gly Arg Gly Lys Gly Gly

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1

5

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aag ggg ctg ggt aag gga ggc gcc aag cgc cac cgg aag gtg ctg cgg      219
Lys Gly Leu Gly Lys Gly Gly Ala Lys Arg His Arg Lys Val Leu Arg
   10                15                20

gac aat atc caa ggc att aca aag ccg gcg att cgc cgt ctc gcc cga      267
Asp Asn Ile Gln Gly Ile Thr Lys Pro Ala Ile Arg Arg Leu Ala Arg
   25                30                35                40

cgt ggg ggc gtc aag cgc att tct ggt ctc atc tac gag gag acc cgg      315
Arg Gly Gly Val Lys Arg Ile Ser Gly Leu Ile Tyr Glu Glu Thr Arg
                45                50                55

gga gtc ctc aaa gtc ttc ctg gag aac gtg atc cgt gac gcg gtg act      363
Gly Val Leu Lys Val Phe Leu Glu Asn Val Ile Arg Asp Ala Val Thr
                60                65                70

tac acg gag cac gcc aag cgc aag acc gtc acg gcc atg gat gtg gtg      411
Tyr Thr Glu His Ala Lys Arg Lys Thr Val Thr Ala Met Asp Val Val
                75                80                85

tac gcg ctg aaa cgc cag ggt cgc acc ctt tat ggt ttc ggc ggt tga      459
Tyr Ala Leu Lys Arg Gln Gly Arg Thr Leu Tyr Gly Phe Gly Gly *
   90                95                100

gctgtcccca cagcttctct acagactcca aaaggccctt ttcagggccc ccaaactgtc      519

acagaaagag ctgttaacac ttcctagata acggaccaag tctagctctg ccaccgaggc      579

tggagtgcag tggcacgata tcgcctccgc ctcccgggtt caagcgattc acctgctca      639

gcttcccgag tagctgggat tacaggcctg cgccaccacg cctggctaata ttttgtatatt      699

tttttttttt ttgggaaaaa acgggggtttc cccttgtggg ccgggggggt tttgaactcc      759

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Met Ala Ala Ala Val Leu Arg Asp Ser Thr Ser Val Pro Val Thr Ala
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gaa gct aaa ctt atg ggc ttt aca cag ggc tgt gtg acc ttt gag gac      96
Glu Ala Lys Leu Met Gly Phe Thr Gln Gly Cys Val Thr Phe Glu Asp
                20                25                30

gtg gcc att tac ttc tcc cag gaa gaa tgg ggg ctc ctt gat gag gct      144
Val Ala Ile Tyr Phe Ser Gln Glu Glu Trp Gly Leu Leu Asp Glu Ala
                35                40                45

cag agg ctc ctg tac cgc gat gtg atg ctg gag aac ttt gca ctt ata      192

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gln | Arg | Leu | Leu | Tyr | Arg | Asp | Val | Met | Leu | Glu | Asn | Phe | Ala | Leu | Ile | | |
| 50 | | | | | | 55 | | | | | 60 | | | | | | |
| act | gcg | ctg | gtt | tgt | tgg | cat | ggg | atg | gag | gat | gaa | gag | aca | cct | gag | 240 | |
| Thr | Ala | Leu | Val | Cys | Trp | His | Gly | Met | Glu | Asp | Glu | Glu | Thr | Pro | Glu | 80 | |
| 65 | | | | | 70 | | | | | 75 | | | | | | | |
| caa | agt | gtt | tct | gta | gaa | gga | gta | cct | cag | gtc | agg | act | cca | gag | gcc | 288 | |
| Gln | Ser | Val | Ser | Val | Glu | Gly | Val | Pro | Gln | Val | Arg | Thr | Pro | Glu | Ala | 95 | |
| | | | | 85 | | | | | 90 | | | | | | | | |
| agt | cca | tcc | acc | cag | aag | att | caa | tcc | tgt | gac | atg | tgt | gtc | cca | ttc | 336 | |
| Ser | Pro | Ser | Thr | Gln | Lys | Ile | Gln | Ser | Cys | Asp | Met | Cys | Val | Pro | Phe | 110 | |
| | | | 100 | | | | | 105 | | | | | | | | | |
| ctg | acc | gac | att | ttg | cac | ctg | acc | gat | ttg | cct | ggg | cag | gaa | cta | tac | 384 | |
| Leu | Thr | Asp | Ile | Leu | His | Leu | Thr | Asp | Leu | Pro | Gly | Gln | Glu | Leu | Tyr | 125 | |
| | | 115 | | | | | 120 | | | | | 125 | | | | | |
| ttg | act | ggg | gca | tgt | gcg | gtc | ttt | cac | cag | gac | cag | aag | cat | cat | agt | 432 | |
| Leu | Thr | Gly | Ala | Cys | Ala | Val | Phe | His | Gln | Asp | Gln | Lys | His | His | Ser | 140 | |
| | 130 | | | | | 135 | | | | | | | | | | | |
| gca | gag | aaa | ccc | ttg | gaa | agt | gac | atg | gac | aag | gcc | tca | ttt | gtg | cag | 480 | |
| Ala | Glu | Lys | Pro | Leu | Glu | Ser | Asp | Met | Asp | Lys | Ala | Ser | Phe | Val | Gln | 160 | |
| 145 | | | | | 150 | | | | | 155 | | | | | | | |
| tgc | tgc | ctg | ttc | cat | gag | tca | gga | atg | cct | ttc | acc | agc | agt | gag | gtt | 528 | |
| Cys | Cys | Leu | Phe | His | Glu | Ser | Gly | Met | Pro | Phe | Thr | Ser | Ser | Glu | Val | 175 | |
| | | | | 165 | | | | | 170 | | | | | | | | |
| ggg | aag | gac | ttc | cta | gcc | cca | ttg | ggc | att | ctt | cag | ccg | caa | gct | att | 576 | |
| Gly | Lys | Asp | Phe | Leu | Ala | Pro | Leu | Gly | Ile | Leu | Gln | Pro | Gln | Ala | Ile | 190 | |
| | | | 180 | | | | | 185 | | | | | | | | | |
| gct | aac | tat | gag | aag | cca | aac | aaa | atc | agc | aaa | tgt | gag | gag | gcc | ttt | 624 | |
| Ala | Asn | Tyr | Glu | Lys | Pro | Asn | Lys | Ile | Ser | Lys | Cys | Glu | Glu | Ala | Phe | 205 | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| cat | gtt | gga | ata | agt | cat | tac | aag | tgg | agt | caa | tgc | agg | aga | gag | tcc | 672 | |
| His | Val | Gly | Ile | Ser | His | Tyr | Lys | Trp | Ser | Gln | Cys | Arg | Arg | Glu | Ser | 220 | |
| | 210 | | | | | 215 | | | | | | | | | | | |
| agc | cac | aaa | cac | act | ttt | ttt | cac | cct | aga | gtc | tgc | act | gga | aaa | agg | 720 | |
| Ser | His | Lys | His | Thr | Phe | Phe | His | Pro | Arg | Val | Cys | Thr | Gly | Lys | Arg | 240 | |
| 225 | | | | | 230 | | | | | 235 | | | | | | | |
| ctt | tat | gaa | tct | agc | aaa | tgt | ggg | aaa | gcc | tgc | tgc | tgt | gag | tgc | tcc | 768 | |
| Leu | Tyr | Glu | Ser | Ser | Lys | Cys | Gly | Lys | Ala | Cys | Cys | Cys | Glu | Cys | Ser | 255 | |
| | | | | 245 | | | | | 250 | | | | | | | | |
| ctt | gtt | cag | ctg | caa | aga | gtc | cac | cct | gga | gaa | agg | cct | tat | gag | tgc | 816 | |
| Leu | Val | Gln | Leu | Gln | Arg | Val | His | Pro | Gly | Glu | Arg | Pro | Tyr | Glu | Cys | 270 | |
| | | | 260 | | | | | 265 | | | | | | | | | |
| agt | gaa | tgt | ggg | aaa | tct | ttt | agc | caa | acc | tct | cat | ctg | aat | gat | cat | 864 | |
| Ser | Glu | Cys | Gly | Lys | Ser | Phe | Ser | Gln | Thr | Ser | His | Leu | Asn | Asp | His | 285 | |
| | 275 | | | | | | 280 | | | | | | | | | | |
| cgg | aga | atc | cac | act | gga | gaa | agg | cct | tat | gtg | tgt | ggt | cag | tgt | ggg | 912 | |
| Arg | Arg | Ile | His | Thr | Gly | Glu | Arg | Pro | Tyr | Val | Cys | Gly | Gln | Cys | Gly | 300 | |
| | 290 | | | | | 295 | | | | | | | | | | | |
| aaa | tca | ttt | agc | caa | aga | gcc | acc | ctc | att | aaa | cat | cac | aga | gtt | cac | 960 | |

| | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|------|
| Lys 305 | Ser | Phe | Ser | Gln | Arg 310 | Ala | Thr | Leu | Ile | Lys 315 | His | His | Arg | Val | His 320 | |
| act | gga | gaa | agg | cct | tac | gag | tgt | ggt | gaa | tgt | ggg | aaa | tct | ttt | agc | 1008 |
| Thr | Gly | Glu | Arg | Pro | Tyr | Glu | Cys | Gly | Glu | Cys | Gly | Lys | Ser | Phe | Ser | |
| | | | | 325 | | | | 330 | | | | | | 335 | | |
| caa | agt | tcc | aac | ctt | att | gaa | cat | tgc | aga | att | cac | act | gga | gaa | agg | 1056 |
| Gln | Ser | Ser | Asn | Leu | Ile | Glu | His | Cys | Arg | Ile | His | Thr | Gly | Glu | Arg | |
| | | | 340 | | | | | 345 | | | | | | 350 | | |
| cct | tat | gag | tgt | gat | gaa | tgt | gga | aaa | gcc | ttt | ggg | tcc | aaa | tcc | act | 1104 |
| Pro | Tyr | Glu | Cys | Asp | Glu | Cys | Gly | Lys | Ala | Phe | Gly | Ser | Lys | Ser | Thr | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| ctt | gtt | cga | cac | cag | aga | act | cac | aca | gga | gaa | aag | cca | tat | gag | tgt | 1152 |
| Leu | Val | Arg | His | Gln | Arg | Thr | His | Thr | Gly | Glu | Lys | Pro | Tyr | Glu | Cys | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| ggt | gaa | tgt | ggg | aaa | tta | ttc | aga | caa | agc | ttc | agc | ctt | gtt | gta | cac | 1200 |
| Gly | Glu | Cys | Gly | Lys | Leu | Phe | Arg | Gln | Ser | Phe | Ser | Leu | Val | Val | His | |
| 385 | | | | | 390 | | | | 395 | | | | | | 400 | |
| cag | aga | att | cac | act | aca | gca | agg | cct | tat | gag | tgt | ggc | cag | tgt | ggg | 1248 |
| Gln | Arg | Ile | His | Thr | Thr | Ala | Arg | Pro | Tyr | Glu | Cys | Gly | Gln | Cys | Gly | |
| | | | | 405 | | | | 410 | | | | | | 415 | | |
| aaa | tca | ttt | agc | cta | aag | tgt | ggc | ctc | att | cag | cac | cag | tta | att | cac | 1296 |
| Lys | Ser | Phe | Ser | Leu | Lys | Cys | Gly | Leu | Ile | Gln | His | Gln | Leu | Ile | His | |
| | | | 420 | | | | 425 | | | | | | 430 | | | |
| agt | gga | gct | agg | ccc | ttt | gag | tgt | gat | gag | tgc | gga | aaa | tcc | ttt | agc | 1344 |
| Ser | Gly | Ala | Arg | Pro | Phe | Glu | Cys | Asp | Glu | Cys | Gly | Lys | Ser | Phe | Ser | |
| | 435 | | | | | 440 | | | | | 445 | | | | | |
| caa | aga | acc | acc | ctc | aat | aaa | cac | cac | aaa | gtt | cac | act | gca | gaa | agg | 1392 |
| Gln | Arg | Thr | Thr | Leu | Asn | Lys | His | His | Lys | Val | His | Thr | Ala | Glu | Arg | |
| | 450 | | | | | 455 | | | | 460 | | | | | | |
| cct | tat | gta | tgt | ggg | gaa | tgt | ggg | aaa | gct | ttt | atg | ttc | aaa | tct | aaa | 1440 |
| Pro | Tyr | Val | Cys | Gly | Glu | Cys | Gly | Lys | Ala | Phe | Met | Phe | Lys | Ser | Lys | |
| 465 | | | | | 470 | | | | 475 | | | | | | 480 | |
| ctt | gtt | agg | cac | cag | aga | act | cac | act | gga | gaa | agg | cct | ttt | gag | tgc | 1488 |
| Leu | Val | Arg | His | Gln | Arg | Thr | His | Thr | Gly | Glu | Arg | Pro | Phe | Glu | Cys | |
| | | | | 485 | | | | | 490 | | | | | 495 | | |
| agt | gaa | tgt | ggg | aaa | ttt | ttt | aga | caa | agc | tat | acc | ctc | gtt | gaa | cac | 1536 |
| Ser | Glu | Cys | Gly | Lys | Phe | Phe | Arg | Gln | Ser | Tyr | Thr | Leu | Val | Glu | His | |
| | | | 500 | | | | 505 | | | | | 510 | | | | |
| cag | aaa | att | cac | act | gga | tta | agg | cct | tac | gac | tgt | gga | cag | tgc | ggg | 1584 |
| Gln | Lys | Ile | His | Thr | Gly | Leu | Arg | Pro | Tyr | Asp | Cys | Gly | Gln | Cys | Gly | |
| | 515 | | | | | 520 | | | | | | 525 | | | | |
| aaa | tcc | ttt | atc | caa | aag | tct | agc | ctc | att | caa | cac | caa | gtg | gtt | cac | 1632 |
| Lys | Ser | Phe | Ile | Gln | Lys | Ser | Ser | Leu | Ile | Gln | His | Gln | Val | Val | His | |
| | 530 | | | | | 535 | | | | 540 | | | | | | |
| aca | gga | gaa | agg | cca | tat | gag | tgt | ggc | aaa | tgt | ggg | aag | tcc | ttt | aca | 1680 |
| Thr | Gly | Glu | Arg | Pro | Tyr | Glu | Cys | Gly | Lys | Cys | Gly | Lys | Ser | Phe | Thr | |
| 545 | | | | 550 | | | | 555 | | | | | | 560 | | |
| caa | cac | tct | ggc | ctc | att | ctc | cac | cga | aaa | tct | cac | act | gtg | gag | agg | 1728 |

Gln His Ser Gly Leu Ile Leu His Arg Lys Ser His Thr Val Glu Arg
565 570 575

cct cgt gac agc agc aaa tgt gga aaa ccc tac agc cca aga tct aac 1776
Pro Arg Asp Ser Ser Lys Cys Gly Lys Pro Tyr Ser Pro Arg Ser Asn
580 585 590

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Ile Val *
595

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cgggtcccagc gtccagagcg ccggcccttc ggcttcttct aggcc atg gca ggg 174
Met Ala Gly
1

ccg ggc cca ggc ccg ggg gac ccg gac gag cag tac gat ttc ctg ttc 222
Pro Gly Pro Gly Pro Gly Asp Pro Asp Glu Gln Tyr Asp Phe Leu Phe
5 10 15

aag ctg gtg ctg gtg ggc gac gca agc gtg ggc aag acg tgc gtg gtg 270
Lys Leu Val Leu Val Gly Asp Ala Ser Val Gly Lys Thr Cys Val Val
20 25 30 35

cag cgc ttc aag acc ggc gcc ttc tcg gag cgc cag gga agc acc atc 318
Gln Arg Phe Lys Thr Gly Ala Phe Ser Glu Arg Gln Gly Ser Thr Ile
40 45 50

ggc gtc gac ttc acc atg aag acg ctg gag atc cag ggc aag cgg gtc 366
Gly Val Asp Phe Thr Met Lys Thr Leu Glu Ile Gln Gly Lys Arg Val
55 60 65

aag ctg cag atc tgg gac acg gcc ggc cag gag cgg ttc cgc acc atc 414
Lys Leu Gln Ile Trp Asp Thr Ala Gly Gln Glu Arg Phe Arg Thr Ile
70 75 80

acc cag agc tac tac cgc agt gcc aat ggg gcc atc ctt gcc tac gac 462
Thr Gln Ser Tyr Tyr Arg Ser Ala Asn Gly Ala Ile Leu Ala Tyr Asp
85 90 95

atc acc aag agg agc tcc ttc ctg tcg gtg cct cac tgg att gag gat 510
Ile Thr Lys Arg Ser Ser Phe Leu Ser Val Pro His Trp Ile Glu Asp
100 105 110 115

gtg agg aag tat gcg ggc tcc aac att gtg cag ctg ctg atc ggg aac 558
Val Arg Lys Tyr Ala Gly Ser Asn Ile Val Gln Leu Leu Ile Gly Asn

| | 120 | 125 | 130 | |
|---|-----|-----|-----|------|
| aag tca gac ctc agc gag ctt cgg gag gtc tcc ttg gct gag gca cag | | | | 606 |
| Lys Ser Asp Leu Ser Glu Leu Arg Glu Val Ser Leu Ala Glu Ala Gln | | | | |
| | 135 | 140 | 145 | |
| agc ctg gct gag cac tat gac atc ctg tgt gcc att gag acg tct gcc | | | | 654 |
| Ser Leu Ala Glu His Tyr Asp Ile Leu Cys Ala Ile Glu Thr Ser Ala | | | | |
| | 150 | 155 | 160 | |
| aag gac tcg agc aac gtg gag gag gcc ttc ctg agg gtg gcc acg gag | | | | 702 |
| Lys Asp Ser Ser Asn Val Glu Glu Ala Phe Leu Arg Val Ala Thr Glu | | | | |
| | 165 | 170 | 175 | |
| ctc atc atg cgg cac ggg ggc ccc ttg ttc agc gag aag agc ccc gac | | | | 750 |
| Leu Ile Met Arg His Gly Gly Pro Leu Phe Ser Glu Lys Ser Pro Asp | | | | |
| | 180 | 185 | 190 | 195 |
| cac atc cag ctg aac agc aag gac atc gga gaa ggc tgg ggc tgc ggg | | | | 798 |
| His Ile Gln Leu Asn Ser Lys Asp Ile Gly Glu Gly Trp Gly Cys Gly | | | | |
| | 200 | 205 | 210 | |
| tgc tga ccaggggccc ggccggcaga ctgggggttc cccacctcct tgctctcccc | | | | 854 |
| Cys * | | | | |
| agcctgccaa gccagccct ccagagccag cctcctggg taccggcaac tacagcagcc | | | | 914 |
| gggtgaagct ctggagctct gcacctgtg gcctggctgc gggatggagg ctctccttga | | | | 974 |
| ggaaggggaa gcaggatacc ctggcgggcc accctgccag ccagcagctg gccctccacc | | | | 1034 |
| atcttcacat tccaagactg gcctgaaccc gccgggtgtg gccacagtgg gaggggccag | | | | 1094 |
| cagtcctccc tgtcccatg | | | | 1113 |

<210> 656
<211> 1406
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (907)..(1029)

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| aactacctgg ggaggggtgag acaacaaaat ccctttaaac tgggaggcaa aaaattcaat | 120 |
| gaaccgggat tttggttctg ccctcccacc cgggggcaaa aggaggctcc ctccaaaaaa | 180 |
| aaaaaaaaaa aaaattcaa ctaatacttt agtcattgtg actttaagaa agagacttgg | 240 |
| tcacctttac tgtaacactc agacatcatt tacttcagtt gatggagatt tcaaaattcc | 300 |
| ttttcaaaag agctaaacat acaaacacca tgaaaaagtc acctaggcct tgcaaaacgg | 360 |
| aaacttagaa aacgtgagaa aatacagcac tatcagtcct tgaaattgcg aagatgtcaa | 420 |
| ctggctagag tttaataaca agaatgagta aactctggga attctgaaaa atcacacaca | 480 |

tgaaacatac agtctagtta tcatttctag acttcctgct cattaataaaa taatggtaac 540
 ctgaagatgt cacactgctt ctctacagat ttgactgggt tctgggttct gcctaaaagg 600
 accctgttgg caacaaccta agttcacttg tactgatcac attttccaag tactctagtc 660
 ggttaattta cactttattt ttttaaaaag ttgatttaaa aaagaaacaa cacaagttta 720
 gaatccataa aatgtcagca atgctgatgt gcactggact gaaacatctt gatcatcttc 780
 tgatagaagt aatattccat acaaaaagat tcttagatc ctttttttgc ttcattattg 840
 tttgtggctt gctttctttg agcaataaag gggtagatac acttgtccgc tcttaggaac 900
 cgatac atg cac aca act gct tca aat ggt agg atg ctc ttc atg aag 948
 Met His Thr Thr Ala Ser Asn Gly Arg Met Leu Phe Met Lys
 1 5 10
 gtc acg atg tac atg agg cgg gga gtg cag atc atg ggc tgg tca gtg 996
 Val Thr Met Tyr Met Arg Arg Gly Val Gln Ile Met Gly Trp Ser Val
 15 20 25 30
 agg atg gcc ttc atg gcc tgc ttc aca cag taa tcaggctt cagaggtggc 1047
 Arg Met Ala Phe Met Ala Cys Phe Thr Gln *
 35 40
 agaaaaggct caatttcttt cctgaaagtt atttattcaa aaacaaaatg aaaaattaac 1107
 tcaatagaaa agactggaaa tacatatcaa aacattaaca gtgatgttat ctgagtgatg 1167
 ggattttggg tacattttgt tttcttcata gtgcttttct gtattttcca aattttcctg 1227
 ctatgaacac attttattgg cacagtctgg agaacaagtt gggaaaaaaa agcaaaattg 1287
 gtctgctttt ccataagatg aaaaagtcac gtttttaaga tgccttaaaa gtatttcaaa 1347
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<210> 657
 <211> 1537
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (375) .. (1127)

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 aacgtctggg cctcacctg gccgggggcg tcgtcccctt ccaggactcc ctggtttaac 120
 gcgttcccc ccatgtccta gctgccctcc ctgtggcggtg agccttcggc ctggtgcgcc 180
 ccgtgcctt tcttggtgt gactctggtg gggttccgaa ggccccttta tgcccggcag 240
 acccctaccg acggcggcat tacattctgg ggccacgagg aggcactcat cgtttcgttc 300
 caaccgccgc caacggcctt ggccctcgcg agctctggaa ctacagaggt cgcacgcccg 360

| | | |
|---|---|-----|
| ggcagtgagt gtgg | atg gct tgg cag gtg agc ctg ctg gag ctg gag gac | 410 |
| | Met Ala Trp Gln Val Ser Leu Leu Glu Leu Glu Asp | |
| | 1 5 10 | |
| cggttt cag tgt ccc atc tgc ctg gag gtc ttc aag gag tcc cta atg | 458 | |
| Arg Leu Gln Cys Pro Ile Cys Leu Glu Val Phe Lys Glu Ser Leu Met | | |
| | 15 20 25 | |
| cta cag tgc ggc cac tcc tac tgc aag ggc tgc ctg gtt tcc ctg tcc | 506 | |
| Leu Gln Cys Gly His Ser Tyr Cys Lys Gly Cys Leu Val Ser Leu Ser | | |
| | 30 35 40 | |
| tac cac ctg gac acc aag gtg cgc tgc ccc atg tgc tgg cag gtg gtg | 554 | |
| Tyr His Leu Asp Thr Lys Val Arg Cys Pro Met Cys Trp Gln Val Val | | |
| | 45 50 55 60 | |
| gac ggc agc agc tcc ttg ccc aac gtc tcc ctg gcc tgg gtg atc gaa | 602 | |
| Asp Gly Ser Ser Ser Leu Pro Asn Val Ser Leu Ala Trp Val Ile Glu | | |
| | 65 70 75 | |
| gcc ctg agg ctc cct ggg gac ccg gag ccc aag gtc tgc gtg cac cac | 650 | |
| Ala Leu Arg Leu Pro Gly Asp Pro Glu Pro Lys Val Cys Val His His | | |
| | 80 85 90 | |
| cggtac ccg ctc agc ctt ttc tgc gag aag gac cag gag ctc atc tgt | 698 | |
| Arg Asn Pro Leu Ser Leu Phe Cys Glu Lys Asp Gln Glu Leu Ile Cys | | |
| | 95 100 105 | |
| ggc ctc tgc ggt ctg ctg ggc tcc cac caa cac cac ccg gtc acg ccc | 746 | |
| Gly Leu Cys Gly Leu Leu Gly Ser His Gln His His Pro Val Thr Pro | | |
| | 110 115 120 | |
| gtc tcc acc gtc tgc agc cgc atg aag gag gag ctc gca gcc ctc ttc | 794 | |
| Val Ser Thr Val Cys Ser Arg Met Lys Glu Glu Leu Ala Ala Leu Phe | | |
| | 125 130 135 140 | |
| tct gag ctg aag cag gag cag aag aag gtg gat gag ctc atc gcc aaa | 842 | |
| Ser Glu Leu Lys Gln Glu Gln Lys Lys Val Asp Glu Leu Ile Ala Lys | | |
| | 145 150 155 | |
| ctg gtg aaa aac cgg acc cga atc gtc aat gag tcg gat gtc ttc agc | 890 | |
| Leu Val Lys Asn Arg Thr Arg Ile Val Asn Glu Ser Asp Val Phe Ser | | |
| | 160 165 170 | |
| tgg gtg atc cgc cgc gag ttc cag gag ctg cgc cac ccg gtg gac gag | 938 | |
| Trp Val Ile Arg Arg Glu Phe Gln Glu Leu Arg His Pro Val Asp Glu | | |
| | 175 180 185 | |
| gag cag gcc cgc tgc ctg gag ggg ata ggg ggt cac acc cgt ggc ctg | 986 | |
| Glu Gln Ala Arg Cys Leu Glu Gly Ile Gly Gly His Thr Arg Gly Leu | | |
| | 190 195 200 | |
| gtg gcc tcc ctg gac atg cag ctg gag cag gcc cag gga acc cgg gag | 1034 | |
| Val Ala Ser Leu Asp Met Gln Leu Glu Gln Ala Gln Gly Thr Arg Glu | | |
| | 205 210 215 220 | |
| cggttg gcc caa gcc gag tgt gtg ctg gaa cag ttc ggc aat gag gac | 1082 | |
| Arg Leu Ala Gln Ala Glu Cys Val Leu Glu Gln Phe Gly Asn Glu Asp | | |
| | 225 230 235 | |
| cac cat gag ttc atc tgg aag ttc cac tcc atg gcc tcc agg taa taa | 1130 | |
| His His Glu Phe Ile Trp Lys Phe His Ser Met Ala Ser Arg * | | |
| | 240 245 250 | |

ccttggagag agctcagcca gggctctggtg gctgcgggca cgggcatctc agctccactg 1190
 gttcctccat tcagcttaac cagcgctcc caagcagctg cctatagctg gctctataac 1250
 tgagcctggg gaagatagag gaaagtcacg tccctgcctt caagggctctc gcagacaggt 1310
 ggggaggcag atggtgaact gtgggtacct agaacagcag aagttcactc aagctacaga 1370
 aatactagag gaggggtggct catgcctgca atcccagtac tttgggaggc caaggcagga 1430
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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (71)..(988)

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 tattcttaaa atg gcg ccg cta gac ctg gac aag tat gtg gaa ata gcg 109
 Met Ala Pro Leu Asp Leu Asp Lys Tyr Val Glu Ile Ala
 1 5 10
 cgg ctg tgc aag tac ctg cca gag aac gac ctg aag cgg cta tgt gac 157
 Arg Leu Cys Lys Tyr Leu Pro Glu Asn Asp Leu Lys Arg Leu Cys Asp
 15 20 25
 tac gtt tgt gac ctc ctc tta gaa gag tca aat gtt cag cca gta tca 205
 Tyr Val Cys Asp Leu Leu Leu Glu Glu Ser Asn Val Gln Pro Val Ser
 30 35 40 45
 aca cca gta aca gtg tgt gga gat atc cat gga cag ttt tat gac ctt 253
 Thr Pro Val Thr Val Cys Gly Asp Ile His Gly Gln Phe Tyr Asp Leu
 50 55 60
 tgt gaa ctg ttc aga act gga ggt cag gtt cct gac aca aac tac ata 301
 Cys Glu Leu Phe Arg Thr Gly Gly Gln Val Pro Asp Thr Asn Tyr Ile
 65 70 75
 ttt atg ggt gat ttt gta gac aga ggt tac tat agt ttg gag acc ttc 349
 Phe Met Gly Asp Phe Val Asp Arg Gly Tyr Tyr Ser Leu Glu Thr Phe
 80 85 90
 act tac ctt ctt gca tta aag gct aaa tgg cct gat cgt att aca ctt 397
 Thr Tyr Leu Leu Ala Leu Lys Ala Lys Trp Pro Asp Arg Ile Thr Leu
 95 100 105
 ttg cga gga aat cat gag agt aga cag ata aca cag gtc tat gga ttt 445
 Leu Arg Gly Asn His Glu Ser Arg Gln Ile Thr Gln Val Tyr Gly Phe
 110 115 120 125
 tat gat gag tgc caa acc aaa tat gga aat gct aat gcc tgg aga tac 493
 Tyr Asp Glu Cys Gln Thr Lys Tyr Gly Asn Ala Asn Ala Trp Arg Tyr
 130 135 140

| | |
|--|------|
| tgt acc aaa gtt ttt gac atg ctc aca gta gca gct tta ata gat gag | 541 |
| Cys Thr Lys Val Phe Asp Met Leu Thr Val Ala Ala Leu Ile Asp Glu | |
| 145 150 155 | |
| cag att ttg tgt gtc cat ggt ggt tta tct cct gat atc aaa aca ctg | 589 |
| Gln Ile Leu Cys Val His Gly Gly Leu Ser Pro Asp Ile Lys Thr Leu | |
| 160 165 170 | |
| gat caa att cga acc atc gaa cgg aat cag gaa att cct cat aaa gga | 637 |
| Asp Gln Ile Arg Thr Ile Glu Arg Asn Gln Glu Ile Pro His Lys Gly | |
| 175 180 185 | |
| gca ttt tgt gat ctg gtt tgg tca gat cct gaa gat gtg gat acc tgg | 685 |
| Ala Phe Cys Asp Leu Val Trp Ser Asp Pro Glu Asp Val Asp Thr Trp | |
| 190 195 200 205 | |
| gct atc agt ccc cga gga gca ggt tgg ctt ttt gga gca aag gtc aca | 733 |
| Ala Ile Ser Pro Arg Gly Ala Gly Trp Leu Phe Gly Ala Lys Val Thr | |
| 210 215 220 | |
| aat gag ttt gtt cat atc aac aac tta aaa ctc atc tgc aga gca cat | 781 |
| Asn Glu Phe Val His Ile Asn Asn Leu Lys Leu Ile Cys Arg Ala His | |
| 225 230 235 | |
| caa cta gtg cac gaa ggc tat aaa ttt atg ttt gat gag aag ctg gtg | 829 |
| Gln Leu Val His Glu Gly Tyr Lys Phe Met Phe Asp Glu Lys Leu Val | |
| 240 245 250 | |
| aca gta tgg tct gct cct aat tac tgc tat cgt tgt gga aat att gct | 877 |
| Thr Val Trp Ser Ala Pro Asn Tyr Cys Tyr Arg Cys Gly Asn Ile Ala | |
| 255 260 265 | |
| tcg atc atg gtc ttc aaa gat gta aat aca aga gaa cca aag tta ttc | 925 |
| Ser Ile Met Val Phe Lys Asp Val Asn Thr Arg Glu Pro Lys Leu Phe | |
| 270 275 280 285 | |
| cgg gca gtt cca gat tca gaa cgt gtt att cct ccc aga acg aca acg | 973 |
| Arg Ala Val Pro Asp Ser Glu Arg Val Ile Pro Pro Arg Thr Thr Thr | |
| 290 295 300 | |
| cca tat ttc ctt tga ggccttcgcc catcctgctg acccattttt ctgccctctt | 1028 |
| Pro Tyr Phe Leu * | |
| 305 | |
| cttaccoccaa ttttcttgta ttaccctcta caatatactt tttattgagc actttgctgc | 1088 |
| tgaaatgctg cctcttgccct tttttttttt aaatttttaa ttatctaaat ttattgtttg | 1148 |
| ttgtggtgtc tatagcaaag tttttctatc aattttcccc catcccatcc ccaccctgga | 1208 |
| ctcatttgag aagacttgag aaatgtctta atactcacac tgctgcatgt agctcttgct | 1268 |
| tatttactgg tctgggaaac aggatgtgtt tccttttttt aaaagccaat tgacagatta | 1328 |
| cacctaaata ctctccttt tgtatcattc agccttttgt tttagtttgg taagttttaa | 1388 |
| gaaatttcag cagcaaagtt gttattcagt gggcacgatg gactccaaat gcctcaagtt | 1448 |
| atgtatacct gtcccagatg taaacttcat tgtcctttgt tggatgatat tttaaagtga | 1508 |
| tataaaataa attggtctaa agggctgccc tccttggtgt gttttttaa tttagttaaa | 1568 |
| aactgctaca gcttatgact ttgtacttta agataattgt attgatcttt tttcagattc | 1628 |

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cttgtatttt ttaataaagt aatcttaaatt aaaactcaga taggttaagt gttagaaatt 1688
ttaaacagct tacattgtta gcgtaaagtt atcttttctt ttttcctaatt cagagttctt 1748
gacccttttg ttattgagtt taaaacttca attgaaattc aatagtattt attttttaaa 1808
aaaatcacta aactgtgcct aaagaacata actgccatat taatgttttg gtttatatcc 1868
tctatagtaa tagaaaaaca ttttaacttt gtaatgctga tgtgttaatt tgataaccagt 1928
tgagtagaat gtgatcaatc cagttttaca tctatcatga gtattattaa ctaaaatcta 1988
tgtgcttttc aataggaatc attcttctct tgctgtaaca cttgacctta acttttagaa 2048
agtgttcatt tttaaactgc aactggaaag gttgaaaagt taggactctt gtatttgtga 2108
actgtaatct gaagcagatt atttaaagtg tagaaaaaga aacaagttct tttttgcaaa 2168
ggtctgtgat accatatttc agctttgtgt aagtaatttg aatata 2214

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<210> 659
<211> 2624
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (193) .. (1776)

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taaagcttgg atgggggttg acctctgcag ggcagcgccc agctatagga gttcccctgc 180
tgagcagaga ag      atg act gca gaa ttg aga gaa gcc atg gcc cta gcc 228
                  Met Thr Ala Glu Leu Arg Glu Ala Met Ala Leu Ala
                   1             5             10

cca tgg ggc cca gtg aag gtg aaa aag gag gag gaa gaa gaa gaa aac 276
Pro Trp Gly Pro Val Lys Val Lys Lys Glu Glu Glu Glu Glu Asn
   15             20             25

ttc cca ggt cag gca tcc agc caa caa gtg cac tcc gag aac atc aaa 324
Phe Pro Gly Gln Ala Ser Ser Gln Gln Val His Ser Glu Asn Ile Lys
   30             35             40

gtc tgg gcc cca gtg cag ggt ctt cag aca ggc ctt gat gga tca gaa 372
Val Trp Ala Pro Val Gln Gly Leu Gln Thr Gly Leu Asp Gly Ser Glu
   45             50             55             60

gag gaa gaa aag ggt cag aac ata tcc tgg gat atg gcg gta gtc ctg 420
Glu Glu Glu Lys Gly Gln Asn Ile Ser Trp Asp Met Ala Val Val Leu
   65             70             75

aaa gca act cag gag gca cct gct gct tca acc ctt ggc agc tac tca 468
Lys Ala Thr Gln Glu Ala Pro Ala Ala Ser Thr Leu Gly Ser Tyr Ser
   80             85             90

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| | |
|---|------|
| tta cca ggg act ctg gcc aag agt gag ata ctg gag act cat ggg acc | 516 |
| Leu Pro Gly Thr Leu Ala Lys Ser Glu Ile Leu Glu Thr His Gly Thr | |
| 95 100 105 | |
| atg aac ttt cta ggt gct gaa acc aag aac cta cag tta ctg gtt cca | 564 |
| Met Asn Phe Leu Gly Ala Glu Thr Lys Asn Leu Gln Leu Leu Val Pro | |
| 110 115 120 | |
| aaa act gag ata tgt gag gaa gct gaa aaa ccc ctc atc ata tca gaa | 612 |
| Lys Thr Glu Ile Cys Glu Glu Ala Glu Lys Pro Leu Ile Ile Ser Glu | |
| 125 130 135 140 | |
| aga atc cag aaa gct gat cct caa gga cct gag tta gga gaa gct tgt | 660 |
| Arg Ile Gln Lys Ala Asp Pro Gln Gly Pro Glu Leu Gly Glu Ala Cys | |
| 145 150 155 | |
| gaa aag gga aac atg tta aag agg cag aga ata aag aga gaa aag aaa | 708 |
| Glu Lys Gly Asn Met Leu Lys Arg Gln Arg Ile Lys Arg Glu Lys Lys | |
| 160 165 170 | |
| gat ttc aga caa gtg ata gtg aat gac tgt cac tta cct gaa agc ttc | 756 |
| Asp Phe Arg Gln Val Ile Val Asn Asp Cys His Leu Pro Glu Ser Phe | |
| 175 180 185 | |
| aaa gaa gag gaa aac cag aaa tgt aag aaa tct gga gga aaa tat agc | 804 |
| Lys Glu Glu Glu Asn Gln Lys Cys Lys Lys Ser Gly Gly Lys Tyr Ser | |
| 190 195 200 | |
| ctt aat tct ggc gct gtt aaa aat cca aaa acc cag ctt gga caa aag | 852 |
| Leu Asn Ser Gly Ala Val Lys Asn Pro Lys Thr Gln Leu Gly Gln Lys | |
| 205 210 215 220 | |
| cct ttt acg tgt agc gtg tgt ggg aaa gga ttt agt cag agt gca aac | 900 |
| Pro Phe Thr Cys Ser Val Cys Gly Lys Gly Phe Ser Gln Ser Ala Asn | |
| 225 230 235 | |
| ctc gtt gtg cat cag cga atc cac act gga gag aaa ccc ttt gaa tgt | 948 |
| Leu Val Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys | |
| 240 245 250 | |
| cat gag tgt ggg aag gcc ttc att cag agt gca aac ctc gtt gtg cat | 996 |
| His Glu Cys Gly Lys Ala Phe Ile Gln Ser Ala Asn Leu Val Val His | |
| 255 260 265 | |
| cag aga atc cac act gga cag aaa cct tat gtt tgc tca aaa tgt ggg | 1044 |
| Gln Arg Ile His Thr Gly Gln Lys Pro Tyr Val Cys Ser Lys Cys Gly | |
| 270 275 280 | |
| aaa gcc ttc act cag agt tca aat ctg act gta cat caa aaa atc cac | 1092 |
| Lys Ala Phe Thr Gln Ser Ser Asn Leu Thr Val His Gln Lys Ile His | |
| 285 290 295 300 | |
| tcc tta gaa aaa act ttt aag tgc aat gaa tgt gag aaa gcc ttt agt | 1140 |
| Ser Leu Glu Lys Thr Phe Lys Cys Asn Glu Cys Glu Lys Ala Phe Ser | |
| 305 310 315 | |
| tac agc tca caa ctt gct cgg cac cag aaa gtc cac att acg gaa aaa | 1188 |
| Tyr Ser Ser Gln Leu Ala Arg His Gln Lys Val His Ile Thr Glu Lys | |
| 320 325 330 | |
| tgc tat gaa tgt aat gaa tgt ggg aaa aca ttt act agg agc tca aac | 1236 |
| Cys Tyr Glu Cys Asn Glu Cys Gly Lys Thr Phe Thr Arg Ser Ser Asn | |
| 335 340 345 | |

| | |
|--|------|
| ctc att gtc cac cag agg atc cac act ggg gag aag ccc ttt gcc tgt | 1284 |
| Leu Ile Val His Gln Arg Ile His Thr Gly Glu Lys Pro Phe Ala Cys | |
| 350 355 360 | |
| aac gac tgt ggc aaa gcc ttt acc cag agt gca aat ctt att gta cat | 1332 |
| Asn Asp Cys Gly Lys Ala Phe Thr Gln Ser Ala Asn Leu Ile Val His | |
| 365 370 375 380 | |
| cag cga agc cat act ggt gag aag cca tat gag tgt aaa gag tgt ggg | 1380 |
| Gln Arg Ser His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly | |
| 385 390 395 | |
| aaa gcc ttt agt tgt ttt tca cac ctt att gtg cac cag aga att cac | 1428 |
| Lys Ala Phe Ser Cys Phe Ser His Leu Ile Val His Gln Arg Ile His | |
| 400 405 410 | |
| act gca gag aaa cct tac gac tgc agc gaa tgt ggg aaa gcc ttc agt | 1476 |
| Thr Ala Glu Lys Pro Tyr Asp Cys Ser Glu Cys Gly Lys Ala Phe Ser | |
| 415 420 425 | |
| cag ctc tct tgc ctt att gtc cac cag aga att cac agt gga gat ctt | 1524 |
| Gln Leu Ser Cys Leu Ile Val His Gln Arg Ile His Ser Gly Asp Leu | |
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| Leu Leu Ile His Gln Arg Ile His Asn Gly Glu Lys Pro Tyr Thr Cys | |
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| Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Glu Lys Cys Gly | |
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| gca gct ttc att tcc aac tca cac ctc atg cga cac cat aga acc cat | 1764 |
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| gag tgc aat gaa tgt gga aaa gtc ttc agc cac caa aaa aga ctt ctt | 1927 |
| Glu Cys Asn Glu Cys Gly Lys Val Phe Ser His Gln Lys Arg Leu Leu | |
| 530 535 540 545 | |
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| 550 555 560 | |
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| Cys Gly Lys Cys Phe Arg His Arg Thr Ser Leu Ile Gln His Gln Lys | |
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| Val His Ser Gly Glu Arg Pro Tyr Asn Cys Thr Ala Cys Glu Lys Ala | |
| 580 585 590 | |
| ttt atc tat aaa aac aaa ctt gtt gag cat cag cga atc cac acc gga | 2119 |
| Phe Ile Tyr Lys Asn Lys Leu Val Glu His Gln Arg Ile His Thr Gly | |
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| Ala Lys Trp Ala Leu Arg Gln Arg Ile Cys Ala Glu Ala Phe Arg Ala | | |
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| Gly Leu Val Gly Glu Ile Ile Lys Arg Phe Glu Gln Lys Gly Phe Arg | | |
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| Leu Val Gly Leu Lys Phe Met Gln Ala Ser Glu Asp Leu Leu Lys Glu | | |
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| Asn Ile Ile His Gly Ser Asp Ser Val Glu Ser Ala Glu Lys Glu Ile | | |
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| Gly Leu Trp Phe Arg Pro Glu Glu Leu Val Asp Tyr Thr Ser Cys Ala | | |
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220

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| Gln Val Glu Lys Lys Lys Ser Ala Gln Met Leu Glu Glu Ala Arg Arg | |
| 270 275 280 | |
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| Arg Glu Asp Asn Leu Asn Asp Ser Ser Gln Gln Leu Gln Asp Ser Leu | |
| 285 290 295 300 | |
| cgt aag aag gat gac agg att gaa gag ctg gaa gaa gca cta aga gaa | 1083 |
| Arg Lys Lys Asp Asp Arg Ile Glu Glu Leu Glu Glu Ala Leu Arg Glu | |
| 305 310 315 | |
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| Arg Ala Glu Arg Arg Lys His Leu Glu Glu Val Leu Glu Met Lys Gln | |
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|-------------|-------------|-------------|------------------|-------------|-------------|------|
| Glu Ala Leu | Leu Ala Ala | Ile Ser Glu | Lys Asp Ala | Asn Ile Ala | Leu | |
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| Leu Glu Leu | Ser Ser Ser | Lys Lys Lys | Thr Gln Glu | Glu Val Ala | Ala Ala | |
| 415 | | 420 | | 425 | | |
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| Gln Asn Arg | Met Lys Leu | Met Ala Asp | Asn Tyr Glu | Asp Asp His | Phe | |
| 445 | | 450 | | 455 | 460 | |
| aaa tcc tcc | cat tcc aat | caa aca aat | cac aag ccc | tcc cca gac | cag | 1563 |
| Lys Ser Ser | His Ser Asn | Gln Thr Asn | His Lys Pro | Ser Pro Asp | Gln | |
| | 465 | | 470 | | 475 | |
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| Asp Glu Glu | Glu Gly Ile | Trp Ala * | | | | |
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 cctcgagttt gagagctacc cggagctcca agacagggggg gggttccagc tgcccgcacg 180
 ccccgacctt ccatcgtagg ccggacc atg gga acc cca aag cca cgg atc 231
 Met Gly Thr Pro Lys Pro Arg Ile
 1 5
 ctg ccc tgg ctg gtg tgg cag ctg gac ctg ggg caa ctg gag ggc gtg 279
 Leu Pro Trp Leu Val Ser Gln Leu Asp Leu Gly Gln Leu Glu Gly Val
 10 15 20
 gcc tgg gtg aac aag agc cgc acg cgc ttc cgc atc cct tgg aag cac 327
 Ala Trp Val Asn Lys Ser Arg Thr Arg Phe Arg Ile Pro Trp Lys His
 25 30 35 40
 ggc cta cgg cag gat gca cag cag gag gat ttc gga atc ttc cag gcc 375
 Gly Leu Arg Gln Asp Ala Gln Gln Glu Asp Phe Gly Ile Phe Gln Ala
 45 50 55
 tgg gcc gag gcc act ggt gca tat gtt ccc ggg agg gat aag cca gac 423
 Trp Ala Glu Ala Thr Gly Ala Tyr Val Pro Gly Arg Asp Lys Pro Asp
 60 65 70
 ctg cca acc tgg aag agg aat ttc cgc tct gcc ctc aac cgc aaa gaa 471
 Leu Pro Thr Trp Lys Arg Asn Phe Arg Ser Ala Leu Asn Arg Lys Glu
 75 80 85
 ggg ttg cgt tta gca gag gac cgg agc aag gac cct cac gac cca cat 519
 Gly Leu Arg Leu Ala Glu Asp Arg Ser Lys Asp Pro His Asp Pro His
 90 95 100

| | |
|---|------|
| aaa atc tac gag ttt gtg aac tca gga gtt ggg gac ttt tcc cag cca | 567 |
| Lys Ile Tyr Glu Phe Val Asn Ser Gly Val Gly Asp Phe Ser Gln Pro | |
| 105 110 115 120 | |
| gac acc tct ccg gac acc aat ggt gga ggc agt act tct gat acc cag | 615 |
| Asp Thr Ser Pro Asp Thr Asn Gly Gly Gly Ser Thr Ser Asp Thr Gln | |
| 125 130 135 | |
| gaa gac att ctg gat gag tta ctg ggt aac atg gtg ttg gcc cca ctc | 663 |
| Glu Asp Ile Leu Asp Glu Leu Leu Gly Asn Met Val Leu Ala Pro Leu | |
| 140 145 150 | |
| cca gat ccg gga ccc cca agc ctg gct gta gcc cct gag ccc tgc cct | 711 |
| Pro Asp Pro Gly Pro Pro Ser Leu Ala Val Ala Pro Glu Pro Cys Pro | |
| 155 160 165 | |
| cag ccc ctg cgg agc ccc agc ttg gac aat ccc act ccc ttc cca aac | 759 |
| Gln Pro Leu Arg Ser Pro Ser Leu Asp Asn Pro Thr Pro Phe Pro Asn | |
| 170 175 180 | |
| ctg ggg ccc tct gag aac cca ctg aag cgg ctg ttg gtg ccg ggg gaa | 807 |
| Leu Gly Pro Ser Glu Asn Pro Leu Lys Arg Leu Leu Val Pro Gly Glu | |
| 185 190 195 200 | |
| gag tgg gag ttc gag gtg aca gcc ttc tac cgg ggc cgc caa gtc ttc | 855 |
| Glu Trp Glu Phe Glu Val Thr Ala Phe Tyr Arg Gly Arg Gln Val Phe | |
| 205 210 215 | |
| cag cag acc atc tcc tgc ccg gag ggc ctg cgg ctg gtg ggg tcc gaa | 903 |
| Gln Gln Thr Ile Ser Cys Pro Glu Gly Leu Arg Leu Val Gly Ser Glu | |
| 220 225 230 | |
| gtg gga gac agg acg ctg cct gga tgg cca gtc aca ctg cca gac cct | 951 |
| Val Gly Asp Arg Thr Leu Pro Gly Trp Pro Val Thr Leu Pro Asp Pro | |
| 235 240 245 | |
| ggc atg tcc ctg aca gac agg gga gtg atg agc tac gtg agg cat gtg | 999 |
| Gly Met Ser Leu Thr Asp Arg Gly Val Met Ser Tyr Val Arg His Val | |
| 250 255 260 | |
| ctg agc tgc ctg ggt ggg gga ctg gct ctc tgg cgg gcc ggg cag tgg | 1047 |
| Leu Ser Cys Leu Gly Gly Gly Leu Ala Leu Trp Arg Ala Gly Gln Trp | |
| 265 270 275 280 | |
| ctc tgg gcc cag cgg ctg ggg cac tgc cac aca tac tgg gca gtg agc | 1095 |
| Leu Trp Ala Gln Arg Leu Gly His Cys His Thr Tyr Trp Ala Val Ser | |
| 285 290 295 | |
| gag gag ctg ctc ccc aac agc ggg cat ggg cct gat ggc gag gtc ccc | 1143 |
| Glu Glu Leu Leu Pro Asn Ser Gly His Gly Pro Asp Gly Glu Val Pro | |
| 300 305 310 | |
| aag gac aag gaa gga ggc gtg ttt gac ctg ggg ccc ttc att gta gat | 1191 |
| Lys Asp Lys Glu Gly Gly Val Phe Asp Leu Gly Pro Phe Ile Val Asp | |
| 315 320 325 | |
| ctg att acc ttc acg gaa gga agc gga cgc tca cca cgc tat gcc ctc | 1239 |
| Leu Ile Thr Phe Thr Glu Gly Ser Gly Arg Ser Pro Arg Tyr Ala Leu | |
| 330 335 340 | |
| tgg ttc tgt gtg ggg gag tca tgg ccc cag gac cag ccg tgg acc aag | 1287 |
| Trp Phe Cys Val Gly Glu Ser Trp Pro Gln Asp Gln Pro Trp Thr Lys | |
| 345 350 355 360 | |

agg ctc gtg atg gtc aag gtt gtg ccc acg tgc ctc agg gcc ttg gta 1335
 Arg Leu Val Met Val Lys Val Val Pro Thr Cys Leu Arg Ala Leu Val
 365 370 375

gaa atg gcc cgg gta ggg ggt gcc tcc tcc ctg gag aat act gtg gac 1383
 Glu Met Ala Arg Val Gly Gly Ala Ser Ser Leu Glu Asn Thr Val Asp
 380 385 390

ctg cac att tcc aac agc cac cca ctc tcc ctc acc tcc gac cag tac 1431
 Leu His Ile Ser Asn Ser His Pro Leu Ser Leu Thr Ser Asp Gln Tyr
 395 400 405

aag gcc tac ctg cag gac ttg gtg gag ggc atg gat ttc cag ggc cct 1479
 Lys Ala Tyr Leu Gln Asp Leu Val Glu Gly Met Asp Phe Gln Gly Pro
 410 415 420

ggg gag agc tga gcc ctgctcctc atggtgtgcc tccaaccccc ctgttcccca 1534
 Gly Glu Ser *
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 Lys Ala Ala Ala Asn Ala Val Gly Leu Phe Ser Arg Leu Gln Ala
 10 15 20

ccc att cca aca gta aga gct tct tcc aca tca cag ccc ttg gat caa 149
 Pro Ile Pro Thr Val Arg Ala Ser Ser Thr Ser Gln Pro Leu Asp Gln
 25 30 35

gtg aca ggt tct gtg tgg aac ctg ggt cga ctc aac cat gta gcc ata 197
 Val Thr Gly Ser Val Trp Asn Leu Gly Arg Leu Asn His Val Ala Ile
 40 45 50

gca gtg cca gat ttg gaa aag gct gca gca ttt tat aag aat att ctg 245
 Ala Val Pro Asp Leu Glu Lys Ala Ala Ala Phe Tyr Lys Asn Ile Leu
 55 60 65

ggg gcc cag gta agt gaa gcg gtc cct ctt cct gaa cat gga gta tct 293
 Gly Ala Gln Val Ser Glu Ala Val Pro Leu Pro Glu His Gly Val Ser
 70 75 80 85

gtt gtt ttt gtc aac ctg gga aat acc aag atg gaa ctg ctt cat cca 341
 Val Val Phe Val Asn Leu Gly Asn Thr Lys Met Glu Leu Leu His Pro
 90 95 100

ttg gga cgt gac agt cca att gca ggt ttt ctg cag aaa aac aag gct 389

| | |
|---|-----|
| Leu Gly Arg Asp Ser Pro Ile Ala Gly Phe Leu Gln Lys Asn Lys Ala | |
| 105 110 115 | |
| gga gga atg cat cac atc tgc atc gag gtg gat aat att aat gca gct | 437 |
| Gly Gly Met His His Ile Cys Ile Glu Val Asp Asn Ile Asn Ala Ala | |
| 120 125 130 | |
| gtg atg gat ttg aaa aaa aag aag atc cgc agt cta agt gaa gag gtc | 485 |
| Val Met Asp Leu Lys Lys Lys Lys Ile Arg Ser Leu Ser Glu Glu Val | |
| 135 140 145 | |
| aaa ata gga gca cat gga aaa cca gtg att ttt ctc cat cct aaa gac | 533 |
| Lys Ile Gly Ala His Gly Lys Pro Val Ile Phe Leu His Pro Lys Asp | |
| 150 155 160 165 | |
| tgt ggt gga gtc ctt gtg gaa ctg gag caa gct tga ttta tatttgcaag | 583 |
| Cys Gly Gly Val Leu Val Glu Leu Glu Gln Ala * | |
| 170 175 | |
| caactaaatt aattgacctg aaaaagccta tcaaatacta tcaaaatgta ctatgacatt | 643 |
| gagtccttca ctgcttccat catgtaaaag ttcacagtta aagactgaat tacagaaaga | 703 |
| ttaaaatata tacatatata aatacataaa tatgtatatt atttagatta acaaacatat | 763 |
| ttgttaattt gaatttgaag aaaatcttga ttactaatta cttagggaac attattaaaa | 823 |
| tcatatagaa ataaattatt cctcttctac aatggggtaa aaaaaaaaaa | 873 |

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<220>
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| Met Ala Asp Val Thr Ala Arg Ser Leu Gln Tyr Glu Tyr Lys Ala Asn | |
| 1 5 10 15 | |
| tcg aat ctt gtg ctc caa gct gac cgt tct ctc att gac cgg acc cgc | 96 |
| Ser Asn Leu Val Leu Gln Ala Asp Arg Ser Leu Ile Asp Arg Thr Arg | |
| 20 25 30 | |
| cgg gat gaa ccc aca gga gag gtg ctg tcc ctt gtt ggg aag ctg gag | 144 |
| Arg Asp Glu Pro Thr Gly Glu Val Leu Ser Leu Val Gly Lys Leu Glu | |
| 35 40 45 | |
| ggc acc cgt atg gga gac aag gct caa cgg acc aaa ccg cag atg cag | 192 |
| Gly Thr Arg Met Gly Asp Lys Ala Gln Arg Thr Lys Pro Gln Met Gln | |
| 50 55 60 | |
| gag gaa aga aga gcc aag cga aga aag cgt gat gag gac cgg cat gac | 240 |
| Glu Glu Arg Arg Ala Lys Arg Arg Lys Arg Asp Glu Asp Arg His Asp | |
| 65 70 75 80 | |
| atc aac aag atg aag ggt tat act ctg ctg tcg gag ggc att gat gag | 288 |
| Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu | |

| 85 | 90 | 95 | |
|---|----|----|------|
| atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr 100 105 110 | | | 336 |
| tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro 115 120 125 | | | 384 |
| cgt gat atc ctt tgt ggg gca gct gat gaa gtt cta gct gtt cta aag Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys 130 135 140 | | | 432 |
| aat gaa aag ctg cgg gac aag gaa agg cga aag gag att gac ctg ctg Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu 145 150 155 160 | | | 480 |
| ctg ggt caa aca gat gat acc aga tac cat gtg cta gtg aac ctg ggc Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly 165 170 175 | | | 528 |
| aaa aag atc aca gac tat ggt gga gat aag gaa atc caa aat atg gat Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp 180 185 190 | | | 576 |
| gac aac att gat gag aca tac ggt gtg aat gtg cag ttt gag tct gat Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp 195 200 205 | | | 624 |
| gag gag gaa ggt gat gaa gac gta tac ggg gag gtt cga gaa gag gca Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala 210 215 220 | | | 672 |
| tct gat gat gac atg gaa ggg gac gag gct gtc gtg cgc tgc acc ctc Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu 225 230 235 240 | | | 720 |
| tcg gct aat atg tat gtt gat gaa atc tta gtc tgg tgt gct tct gaa Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu 245 250 255 | | | 768 |
| ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val 260 265 270 | | | 816 |
| ggc tat gga ttg tca agt aga act tgg ttg cag ggt ggt ggc aaa gtg Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val 275 280 285 | | | 864 |
| atc gag gct ggc aga gac ctg ctc gta gcc tca ggt gaa ctg atg agt Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser 290 295 300 | | | 912 |
| tcc aag aag aag gat ttg cac cct cgg gat att gat gca ttt tgg ctg Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu 305 310 315 320 | | | 960 |
| cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys 325 330 335 | | | 1008 |
| aag gca gat gaa gta ttg gag att ttg aag acg gcc agt gat gat cgg Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg 1056 | | | |

| 340 | 345 | 350 | |
|---|-----|-----|------|
| gaa tgt gaa aat cag ctg gtt ctg ctg ctt ggt ttc aac acc ttt gat Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp 355 360 365 | | | 1104 |
| ttc att aaa gtg ttg cgg cag cac agg atg atg att tta tac tgt acc Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr 370 375 380 | | | 1152 |
| ttg ctg gcc agt gca caa agt gaa gct gaa aag gaa agg att atg gga Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly 385 390 395 400 | | | 1200 |
| aag atg gaa gct gac cca gag cta tcc aag ttc ctc tac cag ctt cat Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His 405 410 415 | | | 1248 |
| gaa acc gag aag gag gat ctg atc cga gag gaa agg tcc cgg aga gag Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu 420 425 430 | | | 1296 |
| cga gtg cgt cag tct cga atg gac aca gat ctg gaa acc atg gat ctc Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu 435 440 445 | | | 1344 |
| gac cag ggt gga gag gca ctg gct cca cgg cag gtt ctg gac ttg gag Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu 450 455 460 | | | 1392 |
| gac ctg gtt ttt acc caa ggg agc cac ttt atg gcc aat aaa cgc tgt Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys 465 470 475 480 | | | 1440 |
| cag ctt cct gat gga tcc ttc cgt cgc cag cgt aag ggc tat gaa gag Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu 485 490 495 | | | 1488 |
| gtg cat gtg cct gct ctg aag ccc aag ccc ttt ggc tca gaa gaa caa Val His Val Pro Ala Leu Lys Pro Lys Pro Phe Gly Ser Glu Glu Gln 500 505 510 | | | 1536 |
| ctg ctt cca gtg gaa aag ctg cca aag tat gcc cag gct ggg ttt gag Leu Leu Pro Val Glu Lys Leu Pro Lys Tyr Ala Gln Ala Gly Phe Glu 515 520 525 | | | 1584 |
| ggc ttc aaa aca ctg aat cgg atc cag agt aag ctc tac cgt gct gcc Gly Phe Lys Thr Leu Asn Arg Ile Gln Ser Lys Leu Tyr Arg Ala Ala 530 535 540 | | | 1632 |
| ctt gag acg gat gag aat ctg ctg ctg tgt gct cct act ggt gct ggg Leu Glu Thr Asp Glu Asn Leu Leu Leu Cys Ala Pro Thr Gly Ala Gly 545 550 555 560 | | | 1680 |
| aag acc aac gtg gcc ctg atg tgc atg ctc cga gag att ggg aaa cac Lys Thr Asn Val Ala Leu Met Cys Met Leu Arg Glu Ile Gly Lys His 565 570 575 | | | 1728 |
| ata aac atg gac ggc acc atc aat gtg gat gac ttc aag att atc tac Ile Asn Met Asp Gly Thr Ile Asn Val Asp Asp Phe Lys Ile Ile Tyr 580 585 590 | | | 1776 |
| att gcc ccc atg cgc tcc ttg gtg cag gag atg gtg ggc agc ttt gga Ile Ala Pro Met Arg Ser Leu Val Gln Glu Met Val Gly Ser Phe Gly 595 600 605 610 | | | 1824 |

| 595 | 600 | 605 | |
|---|-----|-----|------|
| aag cgc ctg gcc act tat ggc atc act gtt gct gaa ctg act ggg gac Lys Arg Leu Ala Thr Tyr Gly Ile Thr Val Ala Glu Leu Thr Gly Asp 610 615 620 | | | 1872 |
| cac cag ctg tgc aaa gaa gag atc agt gcc act cag atc atc gtc tgc His Gln Leu Cys Lys Glu Glu Ile Ser Ala Thr Gln Ile Ile Val Cys 625 630 635 640 | | | 1920 |
| acc ccc gag aag tgg gac atc atc acc cgc aag ggt ggt gag cgc acc Thr Pro Glu Lys Trp Asp Ile Ile Thr Arg Lys Gly Gly Glu Arg Thr 645 650 655 | | | 1968 |
| tac acc cag ctg gtg cgg ctc atc att ctg gat gag att cat ctt ctc Tyr Thr Gln Leu Val Arg Leu Ile Ile Leu Asp Glu Ile His Leu Leu 660 665 670 | | | 2016 |
| cac gat gac aga ggt cct gtc tta gaa gct tta gtg gcc agg gcc atc His Asp Asp Arg Gly Pro Val Leu Glu Ala Leu Val Ala Arg Ala Ile 675 680 685 | | | 2064 |
| cga aac att gag atg acc caa gag gat gtc cga ctc att ggt ctc agt Arg Asn Ile Glu Met Thr Gln Glu Asp Val Arg Leu Ile Gly Leu Ser 690 695 700 | | | 2112 |
| gcc acc cta ccc aac tat gaa gat gta gcc acc ttt cta cgt gtt gac Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Thr Phe Leu Arg Val Asp 705 710 715 720 | | | 2160 |
| cct gcc aag ggt ctc ttt tac ttt gac aac agc ttc cgt cca gtg cct Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro Val Pro 725 730 735 | | | 2208 |
| ctg gaa cag aca tat gtg ggt atc aca gag aaa aaa gct atc aag cgt Leu Glu Gln Thr Tyr Val Gly Ile Thr Glu Lys Lys Ala Ile Lys Arg 740 745 750 | | | 2256 |
| ttc cag atc atg aat gaa ata gtc tat gaa aaa atc atg gaa cat gct Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu His Ala 755 760 765 | | | 2304 |
| gga aaa aat cag gtg ctc gtg ttt gtc cat tct cgc aaa gaa act ggg Gly Lys Asn Gln Val Leu Val Phe Val His Ser Arg Lys Glu Thr Gly 770 775 780 | | | 2352 |
| aag aca gca agg gca atc cgt gac atg tgt ctg gag aag gac act ttg Lys Thr Ala Arg Ala Ile Arg Asp Met Cys Leu Glu Lys Asp Thr Leu 785 790 795 800 | | | 2400 |
| ggt ctg ttt ctt cgc gag ggt tct gcc tcc act gaa gtc ctt cgt aca Gly Leu Phe Leu Arg Glu Gly Ser Ala Ser Thr Glu Val Leu Arg Thr 805 810 815 | | | 2448 |
| gaa gca gag cag tgc aag aac ttg gag ctg aag gat ctt ttg ccc tat Glu Ala Glu Gln Cys Lys Asn Leu Glu Leu Lys Asp Leu Leu Pro Tyr 820 825 830 | | | 2496 |
| ggc ttt gct att cat cat gca ggc atg act aga gtt gac cga aca ctt Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg Thr Leu 835 840 845 | | | 2544 |
| gta gaa gat ctt ttt ggt gac aag cat att cag gtt tta gtt tcc acc Val Glu Asp Leu Phe Gly Asp Lys His Ile Gln Val Leu Val Ser Thr 850 855 860 | | | 2592 |

| | | | |
|---|------|------|------|
| 850 | 855 | 860 | |
| gca act ctg gcg tgg ggt gta aat ctt cct gca cat aca gtc atc att | | | 2640 |
| Ala Thr Leu Ala Trp Gly Val Asn Leu Pro Ala His Thr Val Ile Ile | | | |
| 865 | 870 | 875 | 880 |
| aaa ggt acc caa gtg tac agt cca gag aag ggg cgt tgg aca gag ctg | | | 2688 |
| Lys Gly Thr Gln Val Tyr Ser Pro Glu Lys Gly Arg Trp Thr Glu Leu | | | |
| | 885 | 890 | 895 |
| gga gca ctg gat atc ctg cag atg ctg ggc cgt gct gga cgg ccg cag | | | 2736 |
| Gly Ala Leu Asp Ile Leu Gln Met Leu Gly Arg Ala Gly Arg Pro Gln | | | |
| | 900 | 905 | 910 |
| tat gac acc aag ggt gaa ggc atc ctc atc aca tcc cat ggg gag ctc | | | 2784 |
| Tyr Asp Thr Lys Gly Glu Gly Ile Leu Ile Thr Ser His Gly Glu Leu | | | |
| | 915 | 920 | 925 |
| cag tac tac ctc tcc ctc ctc aac cag cag ctg cct atc gag agc cag | | | 2832 |
| Gln Tyr Tyr Leu Ser Leu Leu Asn Gln Gln Leu Pro Ile Glu Ser Gln | | | |
| | 930 | 935 | 940 |
| atg gtc tcc aag ctg cct gac atg ctc aat gcg gaa att gtt ctg ggc | | | 2880 |
| Met Val Ser Lys Leu Pro Asp Met Leu Asn Ala Glu Ile Val Leu Gly | | | |
| | 945 | 950 | 955 |
| aat gtc cag aat gca aag gat gca gtg aac tgg ctg ggc tat gcc tac | | | 2928 |
| Asn Val Gln Asn Ala Lys Asp Ala Val Asn Trp Leu Gly Tyr Ala Tyr | | | |
| | 965 | 970 | 975 |
| cta tac atc cga atg ctc cgg tcc cct acc ctc tat ggc att tct cat | | | 2976 |
| Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile Ser His | | | |
| | 980 | 985 | 990 |
| gat gac ctc aag gga gat ccc ttg ctg gac cag cgc cga ctc gat ctt | | | 3024 |
| Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu Asp Leu | | | |
| | 995 | 1000 | 1005 |
| gtt cac act gct gcc ttg atg ctg gac aag aac aat ctg gtc aag tac | | | 3072 |
| Val His Thr Ala Ala Leu Met Leu Asp Lys Asn Asn Leu Val Lys Tyr | | | |
| | 1010 | 1015 | 1020 |
| gac aag aag aca ggc aac ttc cag gtg aca gaa ctt ggc cgg ata gca | | | 3120 |
| Asp Lys Lys Thr Gly Asn Phe Gln Val Thr Glu Leu Gly Arg Ile Ala | | | |
| 1025 | 1030 | 1035 | 1040 |
| agt cac tac tat atc acc aat gat act gtg cag acc tac aac cag ctg | | | 3168 |
| Ser His Tyr Tyr Ile Thr Asn Asp Thr Val Gln Thr Tyr Asn Gln Leu | | | |
| | 1045 | 1050 | 1055 |
| ctg aag cct act ctg agt gag att gag ctt ttc cga gtg ttc tcc ttg | | | 3216 |
| Leu Lys Pro Thr Leu Ser Glu Ile Glu Leu Phe Arg Val Phe Ser Leu | | | |
| | 1060 | 1065 | 1070 |
| tcc tca gag ttc aag aac atc act gta aga gag gag gag aag ctg gag | | | 3264 |
| Ser Ser Glu Phe Lys Asn Ile Thr Val Arg Glu Glu Glu Lys Leu Glu | | | |
| | 1075 | 1080 | 1085 |
| ctg cag aag ttg ctg gag aga gtg ccc atc cct gta aag gag agc att | | | 3312 |
| Leu Gln Lys Leu Leu Glu Arg Val Pro Ile Pro Val Lys Glu Ser Ile | | | |
| | 1090 | 1095 | 1100 |
| gag gaa ccc agc gct aag atc aac gtg ctt ctc caa gcc ttc atc tca | | | 3360 |
| Glu Glu Pro Ser Ala Lys Ile Asn Val Leu Leu Gln Ala Phe Ile Ser | | | |

| 1105 | 1110 | 1115 | 1120 | |
|---|------|------|------|------|
| cag ctg aaa ctc gaa ggc ttt gcg ctg atg gct gac atg gtg tat gtg | | | | 3408 |
| Gln Leu Lys Leu Glu Gly Phe Ala Leu Met Ala Asp Met Val Tyr Val | | | | |
| 1125 | | 1130 | 1135 | |
| acc cag tcg gct ggc cgg ttg atg cgt gca atc ttc gaa att gtc ctg | | | | 3456 |
| Thr Gln Ser Ala Gly Arg Leu Met Arg Ala Ile Phe Glu Ile Val Leu | | | | |
| 1140 | | 1145 | 1150 | |
| aac cga ggt tgg gca cag ctt aca gat aag acc ctg aat ctc tgc aag | | | | 3504 |
| Asn Arg Gly Trp Ala Gln Leu Thr Asp Lys Thr Leu Asn Leu Cys Lys | | | | |
| 1155 | | 1160 | 1165 | |
| atg att gac aag cgc atg tgg cag tcc atg tgt cct ctt cgc cag ttc | | | | 3552 |
| Met Ile Asp Lys Arg Met Trp Gln Ser Met Cys Pro Leu Arg Gln Phe | | | | |
| 1170 | | 1175 | 1180 | |
| cga aaa ctt cct gag gaa gta gtg aag aag att gag aag aaa aac ttc | | | | 3600 |
| Arg Lys Leu Pro Glu Glu Val Val Lys Lys Ile Glu Lys Lys Asn Phe | | | | |
| 1185 | | 1190 | 1195 | 1200 |
| ccc ttt gag cgg ctg tat gac ttg aat cat aat gag ata ggt gaa ctt | | | | 3648 |
| Pro Phe Glu Arg Leu Tyr Asp Leu Asn His Asn Glu Ile Gly Glu Leu | | | | |
| 1205 | | 1210 | 1215 | |
| att cga atg ccg aag atg ggg aag acc atc cac aag tat gtc cat ctt | | | | 3696 |
| Ile Arg Met Pro Lys Met Gly Lys Thr Ile His Lys Tyr Val His Leu | | | | |
| 1220 | | 1225 | 1230 | |
| ttc ccc aag ttg gag ttg tca gtg cac ctg cag cct att aca cgc tct | | | | 3744 |
| Phe Pro Lys Leu Glu Leu Ser Val His Leu Gln Pro Ile Thr Arg Ser | | | | |
| 1235 | | 1240 | 1245 | |
| acg ctg aaa gta gag ctg act atc aca cca gat ttc cag tgg gat gaa | | | | 3792 |
| Thr Leu Lys Val Glu Leu Thr Ile Thr Pro Asp Phe Gln Trp Asp Glu | | | | |
| 1250 | | 1255 | 1260 | |
| aag gtc cat ggt tcg tca gag gca ttt tgg att ctg gtg gag gat gtg | | | | 3840 |
| Lys Val His Gly Ser Ser Glu Ala Phe Trp Ile Leu Val Glu Asp Val | | | | |
| 1265 | | 1270 | 1275 | 1280 |
| gac agc gag gtg att ctg cac cat gaa tat ttt ctg ctg aag gcc aag | | | | 3888 |
| Asp Ser Glu Val Ile Leu His His Glu Tyr Phe Leu Leu Lys Ala Lys | | | | |
| 1285 | | 1290 | 1295 | |
| tat gcc cag gat gag cac ctc atc aca ttc ttt gtt cca gtc ttt gaa | | | | 3936 |
| Tyr Ala Gln Asp Glu His Leu Ile Thr Phe Phe Val Pro Val Phe Glu | | | | |
| 1300 | | 1305 | 1310 | |
| cca cta cct cct cag tac ttc att cga gta gtg tct gat cgc tgg ctc | | | | 3984 |
| Pro Leu Pro Pro Gln Tyr Phe Ile Arg Val Val Ser Asp Arg Trp Leu | | | | |
| 1315 | | 1320 | 1325 | |
| tct tgt gag acg cag cta cct gtc tcc ttc cgg cat ctg atc cta cca | | | | 4032 |
| Ser Cys Glu Thr Gln Leu Pro Val Ser Phe Arg His Leu Ile Leu Pro | | | | |
| 1330 | | 1335 | 1340 | |
| gag aag tac cca cct cca act gaa ctg ttg gac ctg cag cca ttg cct | | | | 4080 |
| Glu Lys Tyr Pro Pro Pro Thr Glu Leu Leu Asp Leu Gln Pro Leu Pro | | | | |
| 1345 | | 1350 | 1355 | 1360 |
| gtg tct gct ctg aga aac agt gct ttt gag agc ctt tac caa gat aaa | | | | 4128 |
| Val Ser Ala Leu Arg Asn Ser Ala Phe Glu Ser Leu Tyr Gln Asp Lys | | | | |

| 1365 | 1370 | 1375 | |
|---|------|------|------|
| ttt cct ttc ttc aat ccc atc cag act caa gta ttt aat acc gtg tac | | | 4176 |
| Phe Pro Phe Phe Asn Pro Ile Gln Thr Gln Val Phe Asn Thr Val Tyr | | | |
| 1380 | 1385 | 1390 | |
| aac agt gat gat aac gtg ttt gtg ggg gcc ccc acg ggc agc ggg aag | | | 4224 |
| Asn Ser Asp Asp Asn Val Phe Val Gly Ala Pro Thr Gly Ser Gly Lys | | | |
| 1395 | 1400 | 1405 | |
| act atc tgc gcg gag ttt gcc atc ctt cgg atg ctg ctg cag aat tct | | | 4272 |
| Thr Ile Cys Ala Glu Phe Ala Ile Leu Arg Met Leu Leu Gln Asn Ser | | | |
| 1410 | 1415 | 1420 | |
| gag gga cgc tgt gtc tac att acc cct atg agg ctc tgg cag gag cag | | | 4320 |
| Glu Gly Arg Cys Val Tyr Ile Thr Pro Met Arg Leu Trp Gln Glu Gln | | | |
| 1425 | 1430 | 1435 | 1440 |
| gta tac atg gac tgg tat gag aag ttt cag gac agg ctc aac aag aag | | | 4368 |
| Val Tyr Met Asp Trp Tyr Glu Lys Phe Gln Asp Arg Leu Asn Lys Lys | | | |
| 1445 | 1450 | 1455 | |
| gtc gtg ctg ctg acg ggg gag acc agc aca gac ctg aag ctc ctg ggc | | | 4416 |
| Val Val Leu Leu Thr Gly Glu Thr Ser Thr Asp Leu Lys Leu Leu Gly | | | |
| 1460 | 1465 | 1470 | |
| aaa ggc aac atc atc atc agt acc cct gag aag tgg gac atc ctc tct | | | 4464 |
| Lys Gly Asn Ile Ile Ile Ser Thr Pro Glu Lys Trp Asp Ile Leu Ser | | | |
| 1475 | 1480 | 1485 | |
| cgg agg tgg aag cag cgc aag aac gtc cag aac att aac ctc ttt gtg | | | 4512 |
| Arg Arg Trp Lys Gln Arg Lys Asn Val Gln Asn Ile Asn Leu Phe Val | | | |
| 1490 | 1495 | 1500 | |
| gtg gat gag gtc cac ctt att ggg ggc gag aat ggg cct gtc ttg gaa | | | 4560 |
| Val Asp Glu Val His Leu Ile Gly Gly Glu Asn Gly Pro Val Leu Glu | | | |
| 1505 | 1510 | 1515 | 1520 |
| gtg atc tgc tcc cgg atg cgc tac atc tcc tcc cag att gag cgg ccc | | | 4608 |
| Val Ile Cys Ser Arg Met Arg Tyr Ile Ser Ser Gln Ile Glu Arg Pro | | | |
| 1525 | 1530 | 1535 | |
| att cgc att gtg gca ctt agc tcc tca ctc tcc aat gcc aag gat gtg | | | 4656 |
| Ile Arg Ile Val Ala Leu Ser Ser Ser Leu Ser Asn Ala Lys Asp Val | | | |
| 1540 | 1545 | 1550 | |
| gct cac tgg ctg ggc tgc agt gcc acc tcc acc ttc aac ttc cat cct | | | 4704 |
| Ala His Trp Leu Gly Cys Ser Ala Thr Ser Thr Phe Asn Phe His Pro | | | |
| 1555 | 1560 | 1565 | |
| aat gtg cgc cct gta cct ttg gaa ctg cac atc cag ggc ttc aac atc | | | 4752 |
| Asn Val Arg Pro Val Pro Leu Glu Leu His Ile Gln Gly Phe Asn Ile | | | |
| 1570 | 1575 | 1580 | |
| agt cac aca cag act cgc ctg ctc tct atg gcc aag cct gtg ttc cat | | | 4800 |
| Ser His Thr Gln Thr Arg Leu Leu Ser Met Ala Lys Pro Val Phe His | | | |
| 1585 | 1590 | 1595 | 1600 |
| gct atc acc aaa cac tca ccc aag aag cct gtc atc gtt ttt gtc cca | | | 4848 |
| Ala Ile Thr Lys His Ser Pro Lys Lys Pro Val Ile Val Phe Val Pro | | | |
| 1605 | 1610 | 1615 | |
| tct cgt aag cag acc cgc ctc act gca ata gac atc ctc act acc tgt | | | 4896 |
| Ser Arg Lys Gln Thr Arg Leu Thr Ala Ile Asp Ile Leu Thr Thr Cys | | | |

| 1620 | 1625 | 1630 | |
|--|------|------|------|
| gca gca gac atc cag cgg cag agg ttc ctg cac tgc acc gag aag gac Ala Ala Asp Ile Gln Arg Gln Arg Phe Leu His Cys Thr Glu Lys Asp 1635 | 1640 | 1645 | 4944 |
| ctg atc cct tac ctg gag aag ctc agt gac agc aca ctc aaa gag acc Leu Ile Pro Tyr Leu Glu Lys Leu Ser Asp Ser Thr Leu Lys Glu Thr 1650 | 1655 | 1660 | 4992 |
| ctg tta aat ggg gtg ggc tac ctg cat gaa ggc ctg agc ccc atg gag Leu Leu Asn Gly Val Gly Tyr Leu His Glu Gly Leu Ser Pro Met Glu 1665 | 1670 | 1675 | 5040 |
| agg cgc ctg gta gag cag ctc ttc agc tcc ggg gct atc cag gtg gtg Arg Arg Leu Val Glu Gln Leu Phe Ser Ser Gly Ala Ile Gln Val Val 1685 | 1690 | 1695 | 5088 |
| gta gct tct cgg agt ctc tgc tgg ggc atg aat gtt gct gct cat cta Val Ala Ser Arg Ser Leu Cys Trp Gly Met Asn Val Ala Ala His Leu 1700 | 1705 | 1710 | 5136 |
| gtg atc atc atg gat act ctg tac tac aat ggc aag atc cat gcc tat Val Ile Ile Met Asp Thr Leu Tyr Tyr Asn Gly Lys Ile His Ala Tyr 1715 | 1720 | 1725 | 5184 |
| gtg gat tac ccc atc tat gat gtg ctt cag atg gtg ggc cat gcc aac Val Asp Tyr Pro Ile Tyr Asp Val Leu Gln Met Val Gly His Ala Asn 1730 | 1735 | 1740 | 5232 |
| cgg ccc ctg cag gat gat gag ggg cgc tgt gtc atc atg tgt cag ggt Arg Pro Leu Gln Asp Asp Glu Gly Arg Cys Val Ile Met Cys Gln Gly 1745 | 1750 | 1755 | 5280 |
| tct aaa aag gat ttt ttc aaa aaa ttt ttg tat gag cca ttg cca gta Ser Lys Lys Asp Phe Phe Lys Lys Phe Leu Tyr Glu Pro Leu Pro Val 1765 | 1770 | 1775 | 5328 |
| gag tct cac ctg gac cac tgt atg cat gac cac ttc aat gct gag att Glu Ser His Leu Asp His Cys Met His Asp His Phe Asn Ala Glu Ile 1780 | 1785 | 1790 | 5376 |
| gtc acc aag acc att gag aac aag cag gat gct gtg gac tac ctc acc Val Thr Lys Thr Ile Glu Asn Lys Gln Asp Ala Val Asp Tyr Leu Thr 1795 | 1800 | 1805 | 5424 |
| tgg acc ttt ctg tat cgc aga atg aca cag aac ccc aat tac tac aac Trp Thr Phe Leu Tyr Arg Arg Met Thr Gln Asn Pro Asn Tyr Tyr Asn 1810 | 1815 | 1820 | 5472 |
| ctg cag ggg ata tcc cat cgt cat ctg tct gac cac ctg tca gag ctg Leu Gln Gly Ile Ser His Arg His Leu Ser Asp His Leu Ser Glu Leu 1825 | 1830 | 1835 | 5520 |
| gtg gag cag acc ctc agt gac ctg gag cag tcc aaa tgc atc agt att Val Glu Gln Thr Leu Ser Asp Leu Glu Gln Ser Lys Cys Ile Ser Ile 1845 | 1850 | 1855 | 5568 |
| gag gac gag atg gat gtg gcc cct ctg aac ctg ggc atg att gct gcc Glu Asp Glu Met Asp Val Ala Pro Leu Asn Leu Gly Met Ile Ala Ala 1860 | 1865 | 1870 | 5616 |
| tac tat tac ata aac tac acc acc att gag ctc ttc agc atg tct ctg Tyr Tyr Tyr Ile Asn Tyr Thr Thr Ile Glu Leu Phe Ser Met Ser Leu | | | 5664 |

| 1875 | 1880 | 1885 | |
|--|------|------|------|
| aat gct aaa acc aag gtt cga gga ctt att gag atc att tcc aat gca Asn Ala Lys Thr Lys Val Arg Gly Leu Ile Glu Ile Ile Ser Asn Ala 1890 | 1895 | 1900 | 5712 |
| gca gag tat gag aac att cca atc agg cat cat gaa gac aac ctc ctg Ala Glu Tyr Glu Asn Ile Pro Ile Arg His His Glu Asp Asn Leu Leu 1905 | 1910 | 1915 | 5760 |
| cgc cag ttg gct cag aag gtc ccc cac aag ctg aat aac ccc aag ttc Arg Gln Leu Ala Gln Lys Val Pro His Lys Leu Asn Asn Pro Lys Phe 1925 | 1930 | 1935 | 5808 |
| aat gat cca cat gtg aag acc aat ctg ctg ctg cag gct cac ctg tcc Asn Asp Pro His Val Lys Thr Asn Leu Leu Leu Gln Ala His Leu Ser 1940 | 1945 | 1950 | 5856 |
| cgc atg cag cta agt gct gaa cta cag tca gac aca gag gag atc ctt Arg Met Gln Leu Ser Ala Glu Leu Gln Ser Asp Thr Glu Glu Ile Leu 1955 | 1960 | 1965 | 5904 |
| agt aag gca atc cgg cta att cag gcc tgt gtg gat gta ctc tcc agt Ser Lys Ala Ile Arg Leu Ile Gln Ala Cys Val Asp Val Leu Ser Ser 1970 | 1975 | 1980 | 5952 |
| aat ggg tgg ctt agt cct gct ctg gca gcc atg gaa ctg gcc cag atg Asn Gly Trp Leu Ser Pro Ala Leu Ala Ala Met Glu Leu Ala Gln Met 1985 | 1990 | 1995 | 6000 |
| gtc acc caa gcc atg tgg tct gag gac tct tac ctg agg cgg ttg ccc Val Thr Gln Ala Met Trp Ser Glu Asp Ser Tyr Leu Arg Arg Leu Pro 2005 | 2010 | 2015 | 6048 |
| cct ttc cct tcg ggg ctt ttc aaa cgt tgc aca gat aag gga gtg gag Pro Phe Pro Ser Gly Leu Phe Lys Arg Cys Thr Asp Lys Gly Val Glu 2020 | 2025 | 2030 | 6096 |
| agt gtt ttt gac atc atg gag atg gag gat gaa gaa cgg aat gca ttg Ser Val Phe Asp Ile Met Glu Met Glu Asp Glu Glu Arg Asn Ala Leu 2035 | 2040 | 2045 | 6144 |
| ctt cag ttg act gac agc cag att gca gat gtg gcc cgc ttc tgt aac Leu Gln Leu Thr Asp Ser Gln Ile Ala Asp Val Ala Arg Phe Cys Asn 2050 | 2055 | 2060 | 6192 |
| cgc tac ccg aat att gaa ctg tcc tat gaa gtg gtg gat aaa gac agc Arg Tyr Pro Asn Ile Glu Leu Ser Tyr Glu Val Val Asp Lys Asp Ser 2065 | 2070 | 2075 | 6240 |
| atc cgc agt ggc gga cca gtt gtg gtg cta gtg caa ctg gag cga gag Ile Arg Ser Gly Gly Pro Val Val Val Leu Val Gln Leu Glu Arg Glu 2085 | 2090 | 2095 | 6288 |
| gag gaa gtc acg ggc cca gtt att gca cct ctc ttc cca cag aaa cgt Glu Glu Val Thr Gly Pro Val Ile Ala Pro Leu Phe Pro Gln Lys Arg 2100 | 2105 | 2110 | 6336 |
| gaa gag ggc tgg tgg gtt gtg att gga gac gcc aag tcc aac agc ctc Glu Glu Gly Trp Trp Val Val Ile Gly Asp Ala Lys Ser Asn Ser Leu 2115 | 2120 | 2125 | 6384 |
| atc tcc atc aag agg ctg acc ctg cag cag aaa gcc aag gtg aag cta Ile Ser Ile Lys Arg Leu Thr Leu Gln Gln Lys Ala Lys Val Lys Leu | | | 6432 |

| 2130 | 2135 | 2140 | |
|---|------|------|------|
| gac ttt gtg gcc cca gcc aca ggt ggc cgc cac aat acc ctg tac ttc | | | 6480 |
| Asp Phe Val Ala Pro Ala Thr Gly Gly Arg His Asn Thr Leu Tyr Phe | | | |
| 2145 | 2150 | 2155 | 2160 |
| atg agt gac gca tac atg gga tgt gac cag gag tat aag ttc agt gtg | | | 6528 |
| Met Ser Asp Ala Tyr Met Gly Cys Asp Gln Glu Tyr Lys Phe Ser Val | | | |
| 2165 | 2170 | 2175 | |
| gat gtg aaa gaa gct gag aca gac agt gat tca gat tga | | | 6567 |
| Asp Val Lys Glu Ala Glu Thr Asp Ser Asp Ser Asp * | | | |
| 2180 | 2185 | | |

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| | |
|---|-----|
| atg gcg gat gta acc gcc cgt agt ctg caa tac gag tac aag gcg aac | 48 |
| Met Ala Asp Val Thr Ala Arg Ser Leu Gln Tyr Glu Tyr Lys Ala Asn | |
| 1 5 10 15 | |
| tcg aat ctt gtg ctc caa gct gac cgt tct ctc att gac cgg acc cgc | 96 |
| Ser Asn Leu Val Leu Gln Ala Asp Arg Ser Leu Ile Asp Arg Thr Arg | |
| 20 25 30 | |
| cgg gat gaa ccc aca gga gag gtg ctg tcc ctt gtt ggg aag ctg gag | 144 |
| Arg Asp Glu Pro Thr Gly Glu Val Leu Ser Leu Val Gly Lys Leu Glu | |
| 35 40 45 | |
| ggc acc cgt atg gga gac aag gct caa cgg acc aaa ccg cag atg cag | 192 |
| Gly Thr Arg Met Gly Asp Lys Ala Gln Arg Thr Lys Pro Gln Met Gln | |
| 50 55 60 | |
| gag gaa aga aga gcc aag cga aga aag cgt gat gag gac cgg cat gac | 240 |
| Glu Glu Arg Arg Ala Lys Arg Arg Lys Arg Asp Glu Asp Arg His Asp | |
| 65 70 75 80 | |
| atc aac aag atg aag ggt tat act ctg ctg tcg gag ggc att gat gag | 288 |
| Ile Asn Lys Met Lys Gly Tyr Thr Leu Leu Ser Glu Gly Ile Asp Glu | |
| 85 90 95 | |
| atg gtg ggc atc atc tac aag ccc aaa act aaa gag act cgg gag acc | 336 |
| Met Val Gly Ile Ile Tyr Lys Pro Lys Thr Lys Glu Thr Arg Glu Thr | |
| 100 105 110 | |
| tat gag gtg cta ctc agc ttc atc cag gct gct ctt ggg gac cag cca | 384 |
| Tyr Glu Val Leu Leu Ser Phe Ile Gln Ala Ala Leu Gly Asp Gln Pro | |
| 115 120 125 | |
| cgt gat atc ctt tgt ggg gca gct gat gaa gtt cta gct gtt cta aag | 432 |
| Arg Asp Ile Leu Cys Gly Ala Ala Asp Glu Val Leu Ala Val Leu Lys | |
| 130 135 140 | |

| | |
|---|------|
| aat gaa aag ctg cgg gac aag gaa agg cga aag gag att gac ctg ctg | 480 |
| Asn Glu Lys Leu Arg Asp Lys Glu Arg Arg Lys Glu Ile Asp Leu Leu | |
| 145 150 155 160 | |
| ctg ggt caa aca gat gat acc aga tac cat gtg cta gtg aac ctg ggc | 528 |
| Leu Gly Gln Thr Asp Asp Thr Arg Tyr His Val Leu Val Asn Leu Gly | |
| 165 170 175 | |
| aaa aag atc aca gac tat ggt gga gat aag gaa atc caa aat atg gat | 576 |
| Lys Lys Ile Thr Asp Tyr Gly Gly Asp Lys Glu Ile Gln Asn Met Asp | |
| 180 185 190 | |
| gac aac att gat gag aca tac ggt gtg aat gtg cag ttt gag tct gat | 624 |
| Asp Asn Ile Asp Glu Thr Tyr Gly Val Asn Val Gln Phe Glu Ser Asp | |
| 195 200 205 | |
| gag gag gaa ggt gat gaa gac gta tac ggg gag gtt cga gaa gag gca | 672 |
| Glu Glu Glu Gly Asp Glu Asp Val Tyr Gly Glu Val Arg Glu Glu Ala | |
| 210 215 220 | |
| tct gat gat gac atg gaa ggg gac gag gct gtc gtg cgc tgc acc ctc | 720 |
| Ser Asp Asp Asp Met Glu Gly Asp Glu Ala Val Val Arg Cys Thr Leu | |
| 225 230 235 240 | |
| tcg gct aat atg tat gtt gat gaa atc tta gtc tgg tgt gct tct gaa | 768 |
| Ser Ala Asn Met Tyr Val Asp Glu Ile Leu Val Trp Cys Ala Ser Glu | |
| 245 250 255 | |
| ctc aat att cca gag ttt ttt cct ctg gaa agt cct cac aag aag gtg | 816 |
| Leu Asn Ile Pro Glu Phe Phe Pro Leu Glu Ser Pro His Lys Lys Val | |
| 260 265 270 | |
| ggc tat gga ttg tca agt aga act tgg ttg cag ggt ggt ggc aaa gtg | 864 |
| Gly Tyr Gly Leu Ser Ser Arg Thr Trp Leu Gln Gly Gly Gly Lys Val | |
| 275 280 285 | |
| atc gag gct ggc aga gac ctg ctc gta gcc tca ggt gaa ctg atg agt | 912 |
| Ile Glu Ala Gly Arg Asp Leu Leu Val Ala Ser Gly Glu Leu Met Ser | |
| 290 295 300 | |
| tcc aag aag aag gat ttg cac cct cgg gat att gat gca ttt tgg ctg | 960 |
| Ser Lys Lys Lys Asp Leu His Pro Arg Asp Ile Asp Ala Phe Trp Leu | |
| 305 310 315 320 | |
| cag cgg cag ctc agt cgt ttc tat gat gat gcc atc gtg tcg cag aag | 1008 |
| Gln Arg Gln Leu Ser Arg Phe Tyr Asp Asp Ala Ile Val Ser Gln Lys | |
| 325 330 335 | |
| aag gca gat gaa gta ttg gag att ttg aag acg gcc agt gat gat cgg | 1056 |
| Lys Ala Asp Glu Val Leu Glu Ile Leu Lys Thr Ala Ser Asp Asp Arg | |
| 340 345 350 | |
| gaa tgt gaa aat cag ctg gtt ctg ctg ctt ggt ttc aac acc ttt gat | 1104 |
| Glu Cys Glu Asn Gln Leu Val Leu Leu Leu Gly Phe Asn Thr Phe Asp | |
| 355 360 365 | |
| ttc att aaa gtg ttg cgg cag cac agg atg atg att tta tac tgt acc | 1152 |
| Phe Ile Lys Val Leu Arg Gln His Arg Met Met Ile Leu Tyr Cys Thr | |
| 370 375 380 | |
| ttg ctg gcc agt gca caa agt gaa gct gaa aag gaa agg att atg gga | 1200 |
| Leu Leu Ala Ser Ala Gln Ser Glu Ala Glu Lys Glu Arg Ile Met Gly | |
| 385 390 395 400 | |

| | |
|---|------|
| aag atg gaa gct gac cca gag cta tcc aag ttc ctc tac cag ctt cat | 1248 |
| Lys Met Glu Ala Asp Pro Glu Leu Ser Lys Phe Leu Tyr Gln Leu His | |
| 405 410 415 | |
| gaa acc gag aag gag gat ctg atc cga gag gaa agg tcc cgg aga gag | 1296 |
| Glu Thr Glu Lys Glu Asp Leu Ile Arg Glu Glu Arg Ser Arg Arg Glu | |
| 420 425 430 | |
| cga gtg cgt cag tct cga atg gac aca gat ctg gaa acc atg gat ctc | 1344 |
| Arg Val Arg Gln Ser Arg Met Asp Thr Asp Leu Glu Thr Met Asp Leu | |
| 435 440 445 | |
| gac cag ggt gga gag gca ctg gct cca cgg cag gtt ctg gac ttg gag | 1392 |
| Asp Gln Gly Gly Glu Ala Leu Ala Pro Arg Gln Val Leu Asp Leu Glu | |
| 450 455 460 | |
| gac ctg gtt ttt acc caa ggg agc cac ttt atg gcc aat aaa cgc tgt | 1440 |
| Asp Leu Val Phe Thr Gln Gly Ser His Phe Met Ala Asn Lys Arg Cys | |
| 465 470 475 480 | |
| cag ctt cct gat gga tcc ttc cgt cgc cag cgt aag ggc tat gaa gag | 1488 |
| Gln Leu Pro Asp Gly Ser Phe Arg Arg Gln Arg Lys Gly Tyr Glu Glu | |
| 485 490 495 | |
| gtg cat gtg cct gct ctg aag ccc aag ccc ttt ggc tca gaa gaa caa | 1536 |
| Val His Val Pro Ala Leu Lys Pro Lys Pro Phe Gly Ser Glu Glu Gln | |
| 500 505 510 | |
| ctg ctt cca gtg gaa aag ctg cca aag tat gcc cag gct ggg ttt gag | 1584 |
| Leu Leu Pro Val Glu Lys Leu Pro Lys Tyr Ala Gln Ala Gly Phe Glu | |
| 515 520 525 | |
| ggc ttc aaa aca ctg aat cgg atc cag agt aag ctc tac cgt gct gcc | 1632 |
| Gly Phe Lys Thr Leu Asn Arg Ile Gln Ser Lys Leu Tyr Arg Ala Ala | |
| 530 535 540 | |
| ctt gag acg gat gag aat ctg ctg ctg tgt gct cct act ggt gct ggg | 1680 |
| Leu Glu Thr Asp Glu Asn Leu Leu Leu Cys Ala Pro Thr Gly Ala Gly | |
| 545 550 555 560 | |
| aag acc aac gtg gcc ctg atg tgc atg ctc cga gag att ggg aaa cac | 1728 |
| Lys Thr Asn Val Ala Leu Met Cys Met Leu Arg Glu Ile Gly Lys His | |
| 565 570 575 | |
| ata aac atg gac ggc acc atc aat gtg gat gac ttc aag att atc tac | 1776 |
| Ile Asn Met Asp Gly Thr Ile Asn Val Asp Asp Phe Lys Ile Ile Tyr | |
| 580 585 590 | |
| att gcc ccc atg cgc tcc ttg gtg cag gag atg gtg ggc agc ttt gga | 1824 |
| Ile Ala Pro Met Arg Ser Leu Val Gln Glu Met Val Gly Ser Phe Gly | |
| 595 600 605 | |
| aag cgc ctg gcc act tat ggc atc act gtt gct gaa ctg act ggg gac | 1872 |
| Lys Arg Leu Ala Thr Tyr Gly Ile Thr Val Ala Glu Leu Thr Gly Asp | |
| 610 615 620 | |
| cac cag ctg tgc aaa gaa gag atc agt gcc act cag atc atc gtc tgc | 1920 |
| His Gln Leu Cys Lys Glu Glu Ile Ser Ala Thr Gln Ile Ile Val Cys | |
| 625 630 635 640 | |
| acc ccc gag aag tgg gac atc atc acc cgc aag gtg gat gag att cat | 1968 |
| Thr Pro Glu Lys Trp Asp Ile Ile Thr Arg Lys Val Asp Glu Ile His | |
| 645 650 655 | |

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|---|------|
| ctt ctc cac gat gac aga ggt cct gtc tta gaa gct tta gtg gcc agg Leu Leu His Asp Asp Arg Gly Pro Val Leu Glu Ala Leu Val Ala Arg 660 665 670 | 2016 |
| gcc atc cga aac att gag atg acc caa gag gat gtc cga ctc att ggt Ala Ile Arg Asn Ile Glu Met Thr Gln Glu Asp Val Arg Leu Ile Gly 675 680 685 | 2064 |
| ctc agt gcc acc cta ccc aac tat gaa gat gta gcc acc ttt cta cgt Leu Ser Ala Thr Leu Pro Asn Tyr Glu Asp Val Ala Thr Phe Leu Arg 690 695 700 | 2112 |
| gtt gac cct gcc aag ggt ctc ttt tac ttt gac aac agc ttc cgt cca Val Asp Pro Ala Lys Gly Leu Phe Tyr Phe Asp Asn Ser Phe Arg Pro 705 710 715 720 | 2160 |
| gtg cct ctg gaa cag aca tat gtg ggt atc aca gag aaa aaa gct atc Val Pro Leu Glu Gln Thr Tyr Val Gly Ile Thr Glu Lys Lys Ala Ile 725 730 735 | 2208 |
| aag cgt ttc cag atc atg aat gaa atc gtc tat gaa aaa atc atg gaa Lys Arg Phe Gln Ile Met Asn Glu Ile Val Tyr Glu Lys Ile Met Glu 740 745 750 | 2256 |
| cat gct gga aaa aat cag gtg ctg gtg ttt gtc cac tcc cgg aag gag His Ala Gly Lys Asn Gln Val Leu Val Phe Val His Ser Arg Lys Glu 755 760 765 | 2304 |
| act gga aag aca gcc agg gcc atc cgg gac atg tgc cta gaa aag gac Thr Gly Lys Thr Ala Arg Ala Ile Arg Asp Met Cys Leu Glu Lys Asp 770 775 780 | 2352 |
| act ctg ggt ctg ttt ctg agg gag ggc tca gcc tcc aca gaa gtc ctg Thr Leu Gly Leu Phe Leu Arg Glu Gly Ser Ala Ser Thr Glu Val Leu 785 790 795 800 | 2400 |
| cga aca gaa gct gag cag tgc aag aac cta gag ctg aag gat ctt ctg Arg Thr Glu Ala Glu Gln Cys Lys Asn Leu Glu Leu Lys Asp Leu Leu 805 810 815 | 2448 |
| cct tat ggc ttt gct att cat cac gca ggc atg acc agg gtt gac cga Pro Tyr Gly Phe Ala Ile His His Ala Gly Met Thr Arg Val Asp Arg 820 825 830 | 2496 |
| aca ctc gtg gag gat ctt ttt gct gat aaa cat att cag gtt tta gtt Thr Leu Val Glu Asp Leu Phe Ala Asp Lys His Ile Gln Val Leu Val 835 840 845 | 2544 |
| tcc aca gca act cta gct tgg ggt gtg aat ctc cct gca cat aca gtc Ser Thr Ala Thr Leu Ala Trp Gly Val Asn Leu Pro Ala His Thr Val 850 855 860 | 2592 |
| atc atc aaa ggc acc cag gtg tac agt cca gag aag ggg cgt tgg aca Ile Ile Lys Gly Thr Gln Val Tyr Ser Pro Glu Lys Gly Arg Trp Thr 865 870 875 880 | 2640 |
| gaa ctg gga gca ctg gac att ctg cag atg ctg gga cgt gcc gga aga Glu Leu Gly Ala Leu Asp Ile Leu Gln Met Leu Gly Arg Ala Gly Arg 885 890 895 | 2688 |
| ccc cag tat gac acc aag ggt gaa ggc ata ctc atc aca tct cat ggg Pro Gln Tyr Asp Thr Lys Gly Glu Gly Ile Leu Ile Thr Ser His Gly 900 905 910 | 2736 |

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|---|------|
| gag cta cag tac tac ctg tcc ctc ctc aat caa caa ctt cct att gaa Glu Leu Gln Tyr Tyr Leu Ser Leu Leu Asn Gln Gln Leu Pro Ile Glu 915 920 925 | 2784 |
| agc cag atg gtt tca aag ctt cct gac atg ctc aat gca gaa atc gtg Ser Gln Met Val Ser Lys Leu Pro Asp Met Leu Asn Ala Glu Ile Val 930 935 940 | 2832 |
| cta gga aat gtc cag aat gcc aag gat gcg gtg aac tgg ctg ggc tat Leu Gly Asn Val Gln Asn Ala Lys Asp Ala Val Asn Trp Leu Gly Tyr 945 950 955 960 | 2880 |
| gcc tac ctc tat atc cga atg ctg cga tcc cca acc ctc tat ggc atc Ala Tyr Leu Tyr Ile Arg Met Leu Arg Ser Pro Thr Leu Tyr Gly Ile 965 970 975 | 2928 |
| tct cat gat gac ctc aag gga gat ccc ctg ctg gac cag cgc cga cta Ser His Asp Asp Leu Lys Gly Asp Pro Leu Leu Asp Gln Arg Arg Leu 980 985 990 | 2976 |
| gat ctg gtt cat aca gct gcc ctg atg ctg gac aag aac aat ctg gtc Asp Leu Val His Thr Ala Ala Leu Met Leu Asp Lys Asn Asn Leu Val 995 1000 1005 | 3024 |
| aag tac gac aag aag acg ggc aac ttc cag gtg aca gaa ctg ggc cgt Lys Tyr Asp Lys Lys Thr Gly Asn Phe Gln Val Thr Glu Leu Gly Arg 1010 1015 1020 | 3072 |
| ata gcc agc cac tac tac atc acc aat gat aca gtg cag act tac aac Ile Ala Ser His Tyr Tyr Ile Thr Asn Asp Thr Val Gln Thr Tyr Asn 1025 1030 1035 1040 | 3120 |
| cag ctg ctg aag ccc acc ctg agt gag att gag ctt ttc agg gtc ttc Gln Leu Leu Lys Pro Thr Leu Ser Glu Ile Glu Leu Phe Arg Val Phe 1045 1050 1055 | 3168 |
| tca ttg tcc tct gag ttc aag aac atc aca gtg aga gag gag gag aag Ser Leu Ser Ser Glu Phe Lys Asn Ile Thr Val Arg Glu Glu Glu Lys 1060 1065 1070 | 3216 |
| ctg gag ctg cag aag ttg ctg gag agg gtg cct atc cct gta aag gag Leu Glu Leu Gln Lys Leu Leu Glu Arg Val Pro Ile Pro Val Lys Glu 1075 1080 1085 | 3264 |
| agc att gag gaa ccc agt gct aag atc aac gtt ctt ctg caa gcc ttc Ser Ile Glu Glu Pro Ser Ala Lys Ile Asn Val Leu Leu Gln Ala Phe 1090 1095 1100 | 3312 |
| atc tca cag ctg aaa ttg gag ggc ttt gca ctg atg gct gac atg gtg Ile Ser Gln Leu Lys Leu Glu Gly Phe Ala Leu Met Ala Asp Met Val 1105 1110 1115 1120 | 3360 |
| tat gtc aca cag tcg gct ggc cgg ttg atg cga gcg ata ttt gaa att Tyr Val Thr Gln Ser Ala Gly Arg Leu Met Arg Ala Ile Phe Glu Ile 1125 1130 1135 | 3408 |
| gtc ctg aac cga ggt tgg gca cag ctt aca gac aag acc ctg aac ctc Val Leu Asn Arg Gly Trp Ala Gln Leu Thr Asp Lys Thr Leu Asn Leu 1140 1145 1150 | 3456 |
| tgc aag atg atc gac aaa cgc atg tgg cag tcc atg tgt cct ctg cgc Cys Lys Met Ile Asp Lys Arg Met Trp Gln Ser Met Cys Pro Leu Arg 1155 1160 1165 | 3504 |

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|---|------|
| cag ttc cgg aaa ctc cct gag gaa gta gtg aag aag att gag aag aag Gln Phe Arg Lys Leu Pro Glu Glu Val Val Lys Lys Ile Glu Lys Lys 1170 1175 1180 | 3552 |
| aat ttc ccc ttt gag cgt ctg tac gac ctg aat cat aat gag att ggg Asn Phe Pro Phe Glu Arg Leu Tyr Asp Leu Asn His Asn Glu Ile Gly 1185 1190 1195 1200 | 3600 |
| gag ctt atc cgc atg cca aag atg ggg aag acc atc cac aaa tat gtc Glu Leu Ile Arg Met Pro Lys Met Gly Lys Thr Ile His Lys Tyr Val 1205 1210 1215 | 3648 |
| cat ctg ttt ccc aag ttg gag ttg tca gtg cac ctg cag cct atc aca His Leu Phe Pro Lys Leu Glu Leu Ser Val His Leu Gln Pro Ile Thr 1220 1225 1230 | 3696 |
| cgc tcc acc ctg aag gtg gag ctg acc atc acg cca gac ttc cag tgg Arg Ser Thr Leu Lys Val Glu Leu Thr Ile Thr Pro Asp Phe Gln Trp 1235 1240 1245 | 3744 |
| gat gaa aag gtg cat ggt tca tcc gag gct ttt tgg att ctg gtg gag Asp Glu Lys Val His Gly Ser Ser Glu Ala Phe Trp Ile Leu Val Glu 1250 1255 1260 | 3792 |
| gat gtg gac agc gag gtg att ctg cac cat gag tat ttt ctc ctc aag Asp Val Asp Ser Glu Val Ile Leu His His Glu Tyr Phe Leu Leu Lys 1265 1270 1275 1280 | 3840 |
| gcc aag tac gcc cag gac gag cac ctc att aca ttc ttc gtg cct gtc Ala Lys Tyr Ala Gln Asp Glu His Leu Ile Thr Phe Phe Val Pro Val 1285 1290 1295 | 3888 |
| ttt gaa ccg ctg ccc cct cag tac ttc atc cga gtg gtg tct gac cgc Phe Glu Pro Leu Pro Pro Gln Tyr Phe Ile Arg Val Val Ser Asp Arg 1300 1305 1310 | 3936 |
| tgg ctc tct tgt gag acc cag ctg cct gtc tcc ttc cgg cac ctg atc Trp Leu Ser Cys Glu Thr Gln Leu Pro Val Ser Phe Arg His Leu Ile 1315 1320 1325 | 3984 |
| ttg ccg gag aag tac ccc cct cca acc gaa ctt ttg gag ctg cag ccc Leu Pro Glu Lys Tyr Pro Pro Pro Thr Glu Leu Leu Asp Leu Gln Pro 1330 1335 1340 | 4032 |
| ttg ccc gtg tct gct ctg aga aac agt gcc ttt gag agt ctt tac caa Leu Pro Val Ser Ala Leu Arg Asn Ser Ala Phe Glu Ser Leu Tyr Gln 1345 1350 1355 1360 | 4080 |
| gat aaa ttt cct ttc ttc aat ccc atc cag acc cag gtg ttt aac act Asp Lys Phe Pro Phe Phe Asn Pro Ile Gln Thr Gln Val Phe Asn Thr 1365 1370 1375 | 4128 |
| gta tac aac agt gac gac aac gtg ttt gtg ggg gcc ccc acg ggc agc Val Tyr Asn Ser Asp Asp Asn Val Phe Val Gly Ala Pro Thr Gly Ser 1380 1385 1390 | 4176 |
| ggg aag act att tgt gca gag ttt gcc atc ctg cga atg ctg ctg cag Gly Lys Thr Ile Cys Ala Glu Phe Ala Ile Leu Arg Met Leu Leu Gln 1395 1400 1405 | 4224 |
| agc tcg gag ggg cgc tgt gtg tac atc acc ccc atg gag gcc ctg gca Ser Ser Glu Gly Arg Cys Val Tyr Ile Thr Pro Met Glu Ala Leu Ala 1410 1415 1420 | 4272 |

1855

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|---|------|
| gtg gtg gtg gct tct cgg agt ctc tgc tgg ggc atg aac gtg gct gcc Val Val Val Ala Ser Arg Ser Leu Cys Trp Gly Met Asn Val Ala Ala 1685 1690 1695 | 5088 |
| cac ctg gta atc atc atg gat acc cag tac tac aat ggc aag atc cac His Leu Val Ile Ile Met Asp Thr Gln Tyr Tyr Asn Gly Lys Ile His 1700 1705 1710 | 5136 |
| gcc tat gtg gat tac ccc atc tat gac gtg ctt cag atg gtg ggc cac Ala Tyr Val Asp Tyr Pro Ile Tyr Asp Val Leu Gln Met Val Gly His 1715 1720 1725 | 5184 |
| gcc aac cgc cct ttg cag gac gat gag ggg cgc tgt gtc atc atg tgt Ala Asn Arg Pro Leu Gln Asp Asp Glu Gly Arg Cys Val Ile Met Cys 1730 1735 1740 | 5232 |
| cag ggc tcc aag aag gat ttc ttc aag aag ttc tta tat gag cca ttg Gln Gly Ser Lys Lys Asp Phe Phe Lys Lys Phe Leu Tyr Glu Pro Leu 1745 1750 1755 1760 | 5280 |
| cca gta gaa tct cac ctg gac cac tgt atg cat gac cac ttc aat gct Pro Val Glu Ser His Leu Asp His Cys Met His Asp His Phe Asn Ala 1765 1770 1775 | 5328 |
| gag atc gtc acc aag acc att gag aac aag cag gat gct gtg gac tac Glu Ile Val Thr Lys Thr Ile Glu Asn Lys Gln Asp Ala Val Asp Tyr 1780 1785 1790 | 5376 |
| ctc acc tgg acc ttt ctg tac cgc cgc atg aca cag aac ccc aat tac Leu Thr Trp Thr Phe Leu Tyr Arg Arg Met Thr Gln Asn Pro Asn Tyr 1795 1800 1805 | 5424 |
| tac aac ctg cag ggc atc tcc cat cgt cac ttg tgc gac cac ttg tca Tyr Asn Leu Gln Gly Ile Ser His Arg His Leu Ser Asp His Leu Ser 1810 1815 1820 | 5472 |
| gag ctg gtg gag cag acc ctg agt gac ctg gag cag tcc aag tgc atc Glu Leu Val Glu Gln Thr Leu Ser Asp Leu Glu Gln Ser Lys Cys Ile 1825 1830 1835 1840 | 5520 |
| agc atc gag gac gag atg gac gtg gcg cct ctg aac cta ggc atg atc Ser Ile Glu Asp Glu Met Asp Val Ala Pro Leu Asn Leu Gly Met Ile 1845 1850 1855 | 5568 |
| gcc gcc tac tat tac atc aac tac acc acc att gag ctc ttc agc atg Ala Ala Tyr Tyr Tyr Ile Asn Tyr Thr Thr Ile Glu Leu Phe Ser Met 1860 1865 1870 | 5616 |
| tcc ctc aat gcc aag acc aag gtg cga ggg ctt atc gag atc atc tcc Ser Leu Asn Ala Lys Thr Lys Val Arg Gly Leu Ile Glu Ile Ile Ser 1875 1880 1885 | 5664 |
| aat gca gca gag tat gag aac att ccc atc cgg cac cat gaa gac aat Asn Ala Ala Glu Tyr Glu Asn Ile Pro Ile Arg His His Glu Asp Asn 1890 1895 1900 | 5712 |
| ctc ctg agg cag ttg gct cag aag gtc ccc cac aag ctg aat aac cct Leu Leu Arg Gln Leu Ala Gln Lys Val Pro His Lys Leu Asn Asn Pro 1905 1910 1915 1920 | 5760 |
| aag ttc aat gat ccg cac gtc aag acc aac ctg ctc ctg cag gct cac Lys Phe Asn Asp Pro His Val Lys Thr Asn Leu Leu Leu Gln Ala His 1925 1930 1935 | 5808 |

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|---|------|
| ttg tct cgc atg cag ctg agt gct gag ttg cag tca gat acg gag gaa Leu Ser Arg Met Gln Leu Ser Ala Glu Leu Gln Ser Asp Thr Glu Glu 1940 1945 1950 | 5856 |
| atc ctt agt aag gca atc cgg ctc atc cag gcc tgc gtg gat gtc ctt Ile Leu Ser Lys Ala Ile Arg Leu Ile Gln Ala Cys Val Asp Val Leu 1955 1960 1965 | 5904 |
| tcc agc aat ggg tgg ctc agc cct gct ctg gca gct atg gaa ctg gcc Ser Ser Asn Gly Trp Leu Ser Pro Ala Leu Ala Ala Met Glu Leu Ala 1970 1975 1980 | 5952 |
| cag atg gtc acc caa gcc atg tgg tcc aag gac tca tac ctg aag cag Gln Met Val Thr Gln Ala Met Trp Ser Lys Asp Ser Tyr Leu Lys Gln 1985 1990 1995 2000 | 6000 |
| ctg cca cac ttc acc tct gag cat atc aaa cgt tgc aca gac aag gga Leu Pro His Phe Thr Ser Glu His Ile Lys Arg Cys Thr Asp Lys Gly 2005 2010 2015 | 6048 |
| gtg gag agt gtt ttc gac atc atg gag atg gag gat gaa gaa cgg aac Val Glu Ser Val Phe Asp Ile Met Glu Met Glu Asp Glu Glu Arg Asn 2020 2025 2030 | 6096 |
| gcg ttg ctt cag ctg act gac agc cag att gca gat gtg gct cgc ttt Ala Leu Leu Gln Leu Thr Asp Ser Gln Ile Ala Asp Val Ala Arg Phe 2035 2040 2045 | 6144 |
| tgt aac cgc tac cct aat atc gaa cta tct tat gag gtg gta gat aag Cys Asn Arg Tyr Pro Asn Ile Glu Leu Ser Tyr Glu Val Val Asp Lys 2050 2055 2060 | 6192 |
| gac agc atc cgc agt ggc ggg cca gtt gtg gtg ctg gtg cag ctg gag Asp Ser Ile Arg Ser Gly Gly Pro Val Val Val Leu Val Gln Leu Glu 2065 2070 2075 2080 | 6240 |
| cga gag gag gaa gtc aca ggc cct gtc att gcg cct ctc ttc ccg cag Arg Glu Glu Glu Val Thr Gly Pro Val Ile Ala Pro Leu Phe Pro Gln 2085 2090 2095 | 6288 |
| aaa cgt gaa gag ggc tgg tgg gtg gtg att gga gat gcc aag tcc aat Lys Arg Glu Glu Gly Trp Trp Val Val Ile Gly Asp Ala Lys Ser Asn 2100 2105 2110 | 6336 |
| agc ctc atc tcc atc aag agg ctg acc ttg cag cag aag gcc aag gtg Ser Leu Ile Ser Ile Lys Arg Leu Thr Leu Gln Gln Lys Ala Lys Val 2115 2120 2125 | 6384 |
| aag ttg gac ttt gtg gcc cca gcc act ggt gcc cac aac tac act ctg Lys Leu Asp Phe Val Ala Pro Ala Thr Gly Ala His Asn Tyr Thr Leu 2130 2135 2140 | 6432 |
| tac ttc atg agt gac gct tac atg gga tgt gac cag gag tac aaa ttc Tyr Phe Met Ser Asp Ala Tyr Met Gly Cys Asp Gln Glu Tyr Lys Phe 2145 2150 2155 2160 | 6480 |
| agc gtg gat gtg aaa gaa gct gag aca gac agt gat tca gat tga Ser Val Asp Val Lys Glu Ala Glu Thr Asp Ser Asp Ser Asp * 2165 2170 2175 | 6525 |

<400> 668

1858

gca cgg att gaa cac tca aaa tta tta gaa taa ttttcttg gaaaaatcag 880
 Ala Arg Ile Glu His Ser Lys Leu Leu Glu *
 175 180

cttatggact ttagcagttg ctgtgaaaaa ctaaggaaga aaaatttttg ggtcatttga 940
 tcttcactta atctaagtct gtgaattact tttatattat tttgaaatac tccttgcaagt 1000
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 gtcaaaaattt aaaaaatata atagcacgtt gttggtgtca tattcaataa catttccaat 1120
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 aa 1182

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 ttcttcaggt caggggaaag gga atg ccc aat tca gag aga cat ggg ggc 170
 Met Pro Asn Ser Glu Arg His Gly Gly
 1 5
 aag aag gac ggg agt gga gga gct tct gga act ttg cag ccg tca tcg 218
 Lys Lys Asp Gly Ser Gly Gly Ala Ser Gly Thr Leu Gln Pro Ser Ser
 10 15 20 25
 gga ggc ggc agc tct aac agc aga gag cgt cac cgc ttg gta tcg aag 266
 Gly Gly Gly Ser Ser Asn Ser Arg Glu Arg His Arg Leu Val Ser Lys
 30 35 40
 cac aag cgg cat aag tcc aaa cac tcc aaa gac atg ggg ttg gtg acc 314
 His Lys Arg His Lys Ser Lys His Ser Lys Asp Met Gly Leu Val Thr
 45 50 55
 ccc gaa gca gca tcc ctg ggc aca gtt atc aaa cct ttg gtg gag tat 362
 Pro Glu Ala Ala Ser Leu Gly Thr Val Ile Lys Pro Leu Val Glu Tyr
 60 65 70
 gat gat atc agc tct gat tcc gac acc ttc tcc gat gac atg gcc ttc 410
 Asp Asp Ile Ser Ser Asp Ser Asp Thr Phe Ser Asp Asp Met Ala Phe
 75 80 85
 aaa cta gac cga agg gag aac gac gaa cgt cgt gga tca gat cgg agc 458
 Lys Leu Asp Arg Arg Glu Asn Asp Glu Arg Arg Gly Ser Asp Arg Ser
 90 95 100 105
 gac cgc ctg cac aaa cat cgt cac cac cag cac agg cgt tcc cgg gac 506
 Asp Arg Leu His Lys His Arg His His Gln His Arg Arg Ser Arg Asp
 110 115 120

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|---|------|
| tta cta aaa gct aaa cag acc gaa aaa gaa aaa agc caa gaa gtc tcc Leu Leu Lys Ala Lys Gln Thr Glu Lys Glu Lys Ser Gln Glu Val Ser 125 130 135 | 554 |
| agc aag tcg gga tcg atg aag gac cgg ata tcg gga agt tca aag cgt Ser Lys Ser Gly Ser Met Lys Asp Arg Ile Ser Gly Ser Ser Lys Arg 140 145 150 | 602 |
| tcg aat gag gag act gat gac tat ggg aag gcg cag gta gcc aaa agc Ser Asn Glu Glu Thr Asp Asp Tyr Gly Lys Ala Gln Val Ala Lys Ser 155 160 165 | 650 |
| agc agc aag gaa tcc agg tca tcc aag ctc cac aag gag aag acc agg Ser Ser Lys Glu Ser Arg Ser Ser Lys Leu His Lys Glu Lys Thr Arg 170 175 180 185 | 698 |
| aaa gaa cgg gag ctg aag tct ggg cac aaa gac cgg agt aaa agt cat Lys Glu Arg Glu Leu Lys Ser Gly His Lys Asp Arg Ser Lys Ser His 190 195 200 | 746 |
| cga aaa agg gaa aca ccc aaa agt tac aaa aca gtg gac agc cca aaa Arg Lys Arg Glu Thr Pro Lys Ser Tyr Lys Thr Val Asp Ser Pro Lys 205 210 215 | 794 |
| cgg aga tcc agg agc ccc cac agg aag tgg tct gac agc tcc aaa caa Arg Arg Ser Arg Ser Pro His Arg Lys Trp Ser Asp Ser Ser Lys Gln 220 225 230 | 842 |
| gat gat agc ccc tcg gga gct tct tat ggc caa gat tat gac ctt agt Asp Asp Ser Pro Ser Gly Ala Ser Tyr Gly Gln Asp Tyr Asp Leu Ser 235 240 245 | 890 |
| ccc tca cga tct cat acc tcg agc aat tat gac tcc tac aag aaa agt Pro Ser Arg Ser His Thr Ser Ser Asn Tyr Asp Ser Tyr Lys Lys Ser 250 255 260 265 | 938 |
| cct gga agt acc tcg aga agg cag tcg gtc agt ccc cct tac aag gag Pro Gly Ser Thr Ser Arg Arg Gln Ser Val Ser Pro Pro Tyr Lys Glu 270 275 280 | 986 |
| cct tcg gcc tac cag tcc agc acc cgg tca ccg agc ccc tac agt agg Pro Ser Ala Tyr Gln Ser Ser Thr Arg Ser Pro Ser Pro Tyr Ser Arg 285 290 295 | 1034 |
| cga cag aga tct gtc agt ccc tat agc agg aga cgg tcg tcc agc tac Arg Gln Arg Ser Val Ser Pro Tyr Ser Arg Arg Arg Ser Ser Ser Tyr 300 305 310 | 1082 |
| gaa aga agt ggc tct tac agc ggg cga tcg ccc agt ccc tat ggt cga Glu Arg Ser Gly Ser Tyr Ser Gly Arg Ser Pro Ser Pro Tyr Gly Arg 315 320 325 | 1130 |
| agg cgg tcc agc agc cct ttc ctg agc aag cgg tct ctg agt cgg agt Arg Arg Ser Ser Ser Pro Phe Leu Ser Lys Arg Ser Leu Ser Arg Ser 330 335 340 345 | 1178 |
| cca ctc ccc agt agg aaa tcc atg aag tcc aga agt aga agt cct gca Pro Leu Pro Ser Arg Lys Ser Met Lys Ser Arg Ser Arg Ser Pro Ala 350 355 360 | 1226 |
| tat tca aga cat tca tct tct cat agt aaa aag aag aga tcc agt tca Tyr Ser Arg His Ser Ser Ser His Ser Lys Lys Lys Arg Ser Ser Ser 365 370 375 | 1274 |

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|---|------|
| cgc agt cgt cat tcc agt atc tca cct gtc agg ctt cca ctt aat tcc Arg Ser Arg His Ser Ser Ile Ser Pro Val Arg Leu Pro Leu Asn Ser 380 385 390 | 1322 |
| agt ctg gga gct gaa ctc agt aaa aaa aaa aag aaa aaa gca gct gct Ser Leu Gly Ala Glu Leu Ser Lys Lys Lys Lys Lys Lys Ala Ala Ala 395 400 405 | 1370 |
| gct gct gca gca aag atg gat gga aag gag tcc aag ggt tca cct gta Ala Ala Ala Ala Lys Met Asp Gly Lys Glu Ser Lys Gly Ser Pro Val 410 415 420 425 | 1418 |
| ttt ttg cct aga aaa gag aac agt tca gta gag gct aag gat tca ggt Phe Leu Pro Arg Lys Glu Asn Ser Ser Val Glu Ala Lys Asp Ser Gly 430 435 440 | 1466 |
| ttg gag tct aaa aag tta ccc aga agt gta aaa ttg gaa aaa tct gcc Leu Glu Ser Lys Lys Leu Pro Arg Ser Val Lys Leu Glu Lys Ser Ala 445 450 455 | 1514 |
| cca gat act gaa ctg gtg aat gta aca cat cta aac aca gag gta aaa Pro Asp Thr Glu Leu Val Asn Val Thr His Leu Asn Thr Glu Val Lys 460 465 470 | 1562 |
| aat tct tca gat aca ggg aaa gta aag ttg gat gag aac tcc gag aag Asn Ser Ser Asp Thr Gly Lys Val Lys Leu Asp Glu Asn Ser Glu Lys 475 480 485 | 1610 |
| cat ctt gtt aaa gat ttg aaa gca cag gga aca aga gac tct aaa ccc His Leu Val Lys Asp Leu Lys Ala Gln Gly Thr Arg Asp Ser Lys Pro 490 495 500 505 | 1658 |
| ata gca ctg aaa gag gag att gtt act cca aag gag aca gaa aca tca Ile Ala Leu Lys Glu Glu Ile Val Thr Pro Lys Glu Thr Glu Thr Ser 510 515 520 | 1706 |
| gaa aag gag acc cct cca cct ctt ccc aca att gct tct ccc cca ccc Glu Lys Glu Thr Pro Pro Pro Leu Pro Thr Ile Ala Ser Pro Pro Pro 525 530 535 | 1754 |
| cct cta cca act act acc cct cca cct cag aca ccc cct ttg cca cct Pro Leu Pro Thr Thr Thr Pro Pro Pro Gln Thr Pro Pro Leu Pro Pro 540 545 550 | 1802 |
| ttg cct cca ata cca gct ctt cca cag caa cca cct ctg cct cct tct Leu Pro Pro Ile Pro Ala Leu Pro Gln Gln Pro Pro Leu Pro Pro Ser 555 560 565 | 1850 |
| cag cca gca ttt agt cag gtt cct gct tcc agt act tca act ttg ccc Gln Pro Ala Phe Ser Gln Val Pro Ala Ser Ser Thr Ser Thr Leu Pro 570 575 580 585 | 1898 |
| cct tct act cac tca aag aca tct gct gtg tcc tct cag gca aat tct Pro Ser Thr His Ser Lys Thr Ser Ala Val Ser Ser Gln Ala Asn Ser 590 595 600 | 1946 |
| cag ccc cct gta cag gtt tct gtg aag act caa gta tct gta aca gct Gln Pro Pro Val Gln Val Ser Val Lys Thr Gln Val Ser Val Thr Ala 605 610 615 | 1994 |
| gct att cca cac ctg aaa act tca acg ttg cct cct ttg ccc ctc cca Ala Ile Pro His Leu Lys Thr Ser Thr Leu Pro Pro Leu Pro Leu Pro 620 625 630 | 2042 |

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|---|------|
| ccc tta tta cct gga ggt gat gac atg gat agt cca aaa gaa act ctt Pro Leu Leu Pro Gly Gly Asp Asp Met Asp Ser Pro Lys Glu Thr Leu 635 640 645 | 2090 |
| cct tca aaa cct gtg aag aaa gag aag gaa cag agg aca cgt cac tta Pro Ser Lys Pro Val Lys Lys Glu Lys Glu Gln Arg Thr Arg His Leu 650 655 660 665 | 2138 |
| ctc aca gac ctt cct ctc cct cca gag ctc cct ggt gga gat ctg tct Leu Thr Asp Leu Pro Leu Pro Pro Glu Leu Pro Gly Gly Asp Leu Ser 670 675 680 | 2186 |
| ccc cca gac tct cca gaa cca aag gca atc aca cca cct cag caa cca Pro Pro Asp Ser Pro Glu Pro Lys Ala Ile Thr Pro Pro Gln Gln Pro 685 690 695 | 2234 |
| tat aaa aag aga cca aaa att tgt tgt cct cgt tat gga gaa aga aga Tyr Lys Lys Arg Pro Lys Ile Cys Cys Pro Arg Tyr Gly Glu Arg Arg 700 705 710 | 2282 |
| caa aca gaa agc gac tgg ggg aaa cgc tgt gtg gac aag ttt gac att Gln Thr Glu Ser Asp Trp Gly Lys Arg Cys Val Asp Lys Phe Asp Ile 715 720 725 | 2330 |
| att ggg att att gga gaa gga acc tat ggc caa gta tat aaa gcc agg Ile Gly Ile Ile Gly Glu Gly Thr Tyr Gly Gln Val Tyr Lys Ala Arg 730 735 740 745 | 2378 |
| gac aaa gac aca gga gaa cta gtg gct ctg aag aag gtg aga cta gac Asp Lys Asp Thr Gly Glu Leu Val Ala Leu Lys Lys Val Arg Leu Asp 750 755 760 | 2426 |
| aat gag aaa gag ggc ttc cca atc aca gcc att cgt gaa atc aaa atc Asn Glu Lys Glu Gly Phe Pro Ile Thr Ala Ile Arg Glu Ile Lys Ile 765 770 775 | 2474 |
| ctt cgt cag tta atc cac cga agt gtt gtt aac atg aag gaa att gtc Leu Arg Gln Leu Ile His Arg Ser Val Val Asn Met Lys Glu Ile Val 780 785 790 | 2522 |
| aca gat aaa caa gat gca ctg gat ttc aag aag gac aaa ggt gcc ttt Thr Asp Lys Gln Asp Ala Leu Asp Phe Lys Lys Asp Lys Gly Ala Phe 795 800 805 | 2570 |
| tac ctt gta ttt gag tat atg gac cat gac tta atg gga ctg cta gaa Tyr Leu Val Phe Glu Tyr Met Asp His Asp Leu Met Gly Leu Leu Glu 810 815 820 825 | 2618 |
| tct ggt ttg gtg cac ttt tct gag gac cat atc aag tcg ttc atg aaa Ser Gly Leu Val His Phe Ser Glu Asp His Ile Lys Ser Phe Met Lys 830 835 840 | 2666 |
| cag cta atg gaa gga ttg gaa tac tgt cac aaa aag aat ttc ctg cat Gln Leu Met Glu Gly Leu Glu Tyr Cys His Lys Lys Asn Phe Leu His 845 850 855 | 2714 |
| cgg gat att aag tgt tct aac att ttg ctg aat aac agt ggg caa atc Arg Asp Ile Lys Cys Ser Asn Ile Leu Leu Asn Asn Ser Gly Gln Ile 860 865 870 | 2762 |
| aaa cta gca gat ttt gga ctt gct cgg ctc tat aac tct gaa gag agt Lys Leu Ala Asp Phe Gly Leu Ala Arg Leu Tyr Asn Ser Glu Glu Ser 875 880 885 | 2810 |

| | |
|---|------|
| cgc cct tac aca aac aaa gtc att act ttg tgg tac cga cct cca gaa | 2858 |
| Arg Pro Tyr Thr Asn Lys Val Ile Thr Leu Trp Tyr Arg Pro Pro Glu | |
| 890 895 900 905 | |
| cta ctg cta gga gag gaa cgt tac aca cca gcc ata gat gtt tgg agc | 2906 |
| Leu Leu Leu Gly Glu Glu Arg Tyr Thr Pro Ala Ile Asp Val Trp Ser | |
| 910 915 920 | |
| tgt gga tgt att ctt ggg gaa cta ttc aca aag aag cct att ttt caa | 2954 |
| Cys Gly Cys Ile Leu Gly Glu Leu Phe Thr Lys Lys Pro Ile Phe Gln | |
| 925 930 935 | |
| gcc aat ctg gaa ctg gct cag cta gaa ctg atc agc cga ctt tgt ggt | 3002 |
| Ala Asn Leu Glu Leu Ala Gln Leu Glu Leu Ile Ser Arg Leu Cys Gly | |
| 940 945 950 | |
| agc cct tgt cca gct gtg tgg cct gat gtt atc aaa ctg ccc tac ttc | 3050 |
| Ser Pro Cys Pro Ala Val Trp Pro Asp Val Ile Lys Leu Pro Tyr Phe | |
| 955 960 965 | |
| aac acc atg aaa ccg aag aag caa tat cga agg cgt cta cga gaa gaa | 3098 |
| Asn Thr Met Lys Pro Lys Lys Gln Tyr Arg Arg Arg Leu Arg Glu Glu | |
| 970 975 980 985 | |
| ttc tct ttc att cct tct gca gca ctt gat tta ttg gac cac atg ctg | 3146 |
| Phe Ser Phe Ile Pro Ser Ala Ala Leu Asp Leu Leu Asp His Met Leu | |
| 990 995 1000 | |
| aca cta gat cct agt aag cgg tgc aca gct gaa cag acc cta cag agc | 3194 |
| Thr Leu Asp Pro Ser Lys Arg Cys Thr Ala Glu Gln Thr Leu Gln Ser | |
| 1005 1010 1015 | |
| gac ttc ctt aaa gat gtc gaa ctc agc aaa atg gct cct cca gac ctc | 3242 |
| Asp Phe Leu Lys Asp Val Glu Leu Ser Lys Met Ala Pro Pro Asp Leu | |
| 1020 1025 1030 | |
| ccc cac tgg cag gat tgc cat gag ttg tgg agt aag aaa cgg cga cgt | 3290 |
| Pro His Trp Gln Asp Cys His Glu Leu Trp Ser Lys Lys Arg Arg Arg | |
| 1035 1040 1045 | |
| cag cga caa agt ggt gtt gta gtc gaa gag cca cct cca tcc aaa act | 3338 |
| Gln Arg Gln Ser Gly Val Val Val Glu Glu Pro Pro Pro Ser Lys Thr | |
| 1050 1055 1060 1065 | |
| tct cga aaa gaa act acc tca ggg aca agt act gag cct gtg aag aac | 3386 |
| Ser Arg Lys Glu Thr Thr Ser Gly Thr Ser Thr Glu Pro Val Lys Asn | |
| 1070 1075 1080 | |
| agc agc cca gca cca cct cag cct gct cct ggc aag gtg gag tct ggg | 3434 |
| Ser Ser Pro Ala Pro Pro Gln Pro Ala Pro Gly Lys Val Glu Ser Gly | |
| 1085 1090 1095 | |
| gct ggg gat gca ata ggc ctt gct gac atc aca caa cag ctg aat caa | 3482 |
| Ala Gly Asp Ala Ile Gly Leu Ala Asp Ile Thr Gln Gln Leu Asn Gln | |
| 1100 1105 1110 | |
| agt gaa ttg gca gtg tta tta aac ctg ctg cag agc caa acc gac ctg | 3530 |
| Ser Glu Leu Ala Val Leu Leu Asn Leu Leu Gln Ser Gln Thr Asp Leu | |
| 1115 1120 1125 | |
| agc atc cct caa atg gca cag ctg ctt aac atc cac tcc aac cca gag | 3578 |
| Ser Ile Pro Gln Met Ala Gln Leu Leu Asn Ile His Ser Asn Pro Glu | |
| 1130 1135 1140 1145 | |

| | |
|---|------|
| atg cag cag cag ctg gaa gcc ctg aac caa tcc atc agt gcc ctg acg Met Gln Gln Gln Leu Glu Ala Leu Asn Gln Ser Ile Ser Ala Leu Thr 1150 1155 1160 | 3626 |
| gaa gct act tcc cag cag cag gac tca gag acc atg gcc cca gag gag Glu Ala Thr Ser Gln Gln Gln Asp Ser Glu Thr Met Ala Pro Glu Glu 1165 1170 1175 | 3674 |
| tct ttg aag gaa gca ccc tct gcc cca gtg atc ctg cct tca gca gaa Ser Leu Lys Glu Ala Pro Ser Ala Pro Val Ile Leu Pro Ser Ala Glu 1180 1185 1190 | 3722 |
| cag atg acc ctt gaa gct tca agc aca cca gct gac atg cag aat ata Gln Met Thr Leu Glu Ala Ser Ser Thr Pro Ala Asp Met Gln Asn Ile 1195 1200 1205 | 3770 |
| ttg gca gtt ctc ttg agt cag ctg atg aaa acc caa gag cca gca ggc Leu Ala Val Leu Leu Ser Gln Leu Met Lys Thr Gln Glu Pro Ala Gly 1210 1215 1220 1225 | 3818 |
| agt ctg gag gaa aac aac agt gac aag aac agt ggg cca cag ggg ccc Ser Leu Glu Glu Asn Asn Ser Asp Lys Asn Ser Gly Pro Gln Gly Pro 1230 1235 1240 | 3866 |
| cga aga act ccc aca atg cca cag gag gag gca gca gca tgt cct cct Arg Arg Thr Pro Thr Met Pro Gln Glu Glu Ala Ala Ala Cys Pro Pro 1245 1250 1255 | 3914 |
| cac att ctt cca cca gag aag agg ccc cct gag ccc ccc gga cct cca His Ile Leu Pro Pro Glu Lys Arg Pro Pro Glu Pro Pro Gly Pro Pro 1260 1265 1270 | 3962 |
| ccg ccg cca cct cca ccc cct ctg gtt gaa ggc gat ctt tcc agc gcc Pro Pro Pro Pro Pro Pro Pro Leu Val Glu Gly Asp Leu Ser Ser Ala 1275 1280 1285 | 4010 |
| ccc cag gag ttg aac cca gcc gtg aca gcc gcc ttg ctg caa ctt tta Pro Gln Glu Leu Asn Pro Ala Val Thr Ala Ala Leu Leu Gln Leu Leu 1290 1295 1300 1305 | 4058 |
| tcc cag cct gaa gca gag cct cct ggc cac ctg cca cat gag cac cag Ser Gln Pro Glu Ala Glu Pro Pro Gly His Leu Pro His Glu His Gln 1310 1315 1320 | 4106 |
| gcc ttg aga cca atg gag tac tcc acc cga ccc cgt cca aac agg act Ala Leu Arg Pro Met Glu Tyr Ser Thr Arg Pro Arg Pro Asn Arg Thr 1325 1330 1335 | 4154 |
| tat gga aac act gat ggg cct gaa aca ggg ttc agt gcc att gac act Tyr Gly Asn Thr Asp Gly Pro Glu Thr Gly Phe Ser Ala Ile Asp Thr 1340 1345 1350 | 4202 |
| gat gaa cga aac tct ggt cca gcc ttg aca gaa tcc ttg gtc cag acc Asp Glu Arg Asn Ser Gly Pro Ala Leu Thr Glu Ser Leu Val Gln Thr 1355 1360 1365 | 4250 |
| ctg gtg aag aac agg acc ttc tca ggc tct ctg agc cac ctt ggg gag Leu Val Lys Asn Arg Thr Phe Ser Gly Ser Leu Ser His Leu Gly Glu 1370 1375 1380 1385 | 4298 |
| tcc agc agt tac cag ggc aca ggg tag gagca acggtgggaa tgccctctga Ser Ser Ser Tyr Gln Gly Thr Gly * 1390 | 4350 |

ggaatgcagt gatgtccatc agtcacctct caccagagc ctggcaaatt cagtctcttt 4410
 cacagaacct aaagccaagc caggttcagt gggaaatccc acctgtccaa aactgtgtg 4470
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 atg tct gac ctg gag gca aaa ctt tca act gag cat ttg ggg gat aag 168
 Met Ser Asp Leu Glu Ala Lys Leu Ser Thr Glu His Leu Gly Asp Lys
 1 5 10 15
 ata aaa gat gaa gat att aaa ctc agg gtt att gga cag gat agc agt 216
 Ile Lys Asp Glu Asp Ile Lys Leu Arg Val Ile Gly Gln Asp Ser Ser
 20 25 30
 gag att cat ttc aaa gtg aaa atg aca aca cct ctc aag aaa ctc aag 264
 Glu Ile His Phe Lys Val Lys Met Thr Thr Pro Leu Lys Lys Leu Lys
 35 40 45
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 Lys Ser Tyr Cys Gln Arg Gln Gly Val Pro Val Asn Ser Leu Arg Phe
 50 55 60
 ctc ttt gaa ggt cag aga att gct gat aat cat act cca gaa gaa ctg 360
 Leu Phe Glu Gly Gln Arg Ile Ala Asp Asn His Thr Pro Glu Glu Leu
 65 70 75 80
 gga atg gag gaa gaa gat gtg att gag gtt tat cag gaa caa atc gga 408
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Met Pro His Gln Arg Pro Arg Thr Cys Ala Met Asn Pro Glu Leu Thr
      1              5              10              15

atg gaa agt ctg ggc act ttg cac ggc gcg cgc ggc ggc ggc agt ggc      154
Met Glu Ser Leu Gly Thr Leu His Gly Ala Arg Gly Gly Gly Ser Gly
      20              25              30

ggg ggc ggc ggc ggg ggc ggc ggg ggc ggc ggc ggg ggc ccg ggc cat      202
Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Gly Pro Gly His
      35              40              45

gag cag gag ctg ctg gcc agc ccc agc ccc cac cac gcg cgc cgc ggc      250
Glu Gln Glu Leu Leu Ala Ser Pro Ser Pro His His Ala Arg Arg Gly
      50              55              60

ccg cgt ggc tcg ctg cgg ggc cct ccg ccg cct cca acc gcg cac cag      298
Pro Arg Gly Ser Leu Arg Gly Pro Pro Pro Pro Pro Thr Ala His Gln
      65              70              75              80

gag ctg ggc acg gcg gca gcg gcg gca gcg gcg gcg tcg cgc tcg gcc      346
Glu Leu Gly Thr Ala Ala Ala Ala Ala Ala Ala Ala Ser Arg Ser Ala
      85              90              95

atg gtc acc agc atg gcc tcg atc ctg gac ggc ggc gac tac cgg ccc      394
Met Val Thr Ser Met Ala Ser Ile Leu Asp Gly Gly Asp Tyr Arg Pro
      100              105              110

gag ctc tcc atc ccg ctg cac cac gcc atg agc atg tcc tgc gac tcg      442
Glu Leu Ser Ile Pro Leu His His Ala Met Ser Met Ser Cys Asp Ser
      115              120              125

tct ccg cct ggc atg ggc atg agc aac acc tac acc acg ctg aca ccg      490
Ser Pro Pro Gly Met Gly Met Ser Asn Thr Tyr Thr Thr Leu Thr Pro
      130              135              140

ctc cag ccg ctg cca ccc atc tcc acc gtg tct gac aag ttc cac cac      538
Leu Gln Pro Leu Pro Pro Ile Ser Thr Val Ser Asp Lys Phe His His
      145              150              155              160

cct cac ccg cac cac cat ccg cac cac cac cac cac cac cac cac cag      586
Pro His Pro His His His Pro His His His His His His His His Gln
      165              170              175

cgc ctg tcc ggc aac gtc agc ggc agc ttc acc ctc atg cgc gac gag      634
Arg Leu Ser Gly Asn Val Ser Gly Ser Phe Thr Leu Met Arg Asp Glu
      180              185              190

cgc ggg ctc ccg gcc atg aac aac ctc tac agt ccc tac aag gag atg      682
Arg Gly Leu Pro Ala Met Asn Asn Leu Tyr Ser Pro Tyr Lys Glu Met
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ccc ggc atg agc cag agc ctg tcc ccg ctg gcc gcc acc ccg ctg ggc      730
Pro Gly Met Ser Gln Ser Leu Ser Pro Leu Ala Ala Thr Pro Leu Gly
      210              215              220

aac ggg cta ggc ggc ctc cac aac gcg cag cag agt ctg ccc aac tac      778
Asn Gly Leu Gly Gly Leu His Asn Ala Gln Gln Ser Leu Pro Asn Tyr
      225              230              235              240

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| | |
|---|------|
| ggt ccg ccg ggc cac gac aaa atg ctc agc ccc aac ttc gac gcg cac Gly Pro Pro Gly His Asp Lys Met Leu Ser Pro Asn Phe Asp Ala His 245 250 255 | 826 |
| cac act gcc atg ctg acc cgc ggt gag caa cac ctg tcc cgc ggc ctg His Thr Ala Met Leu Thr Arg Gly Glu Gln His Leu Ser Arg Gly Leu 260 265 270 | 874 |
| ggc acc cca cct gcg gcc atg atg tcg cac ctg aac ggc ctg cac cac Gly Thr Pro Pro Ala Ala Met Met Ser His Leu Asn Gly Leu His His 275 280 285 | 922 |
| ccg ggc cac act cag tct cac ggg ccg gtg ctg gca ccc agt cgc gag Pro Gly His Thr Gln Ser His Gly Pro Val Leu Ala Pro Ser Arg Glu 290 295 300 | 970 |
| cgg cca ccc tcg tcc tca tcg ggc tcg cag gtg gcc acg tcg ggc cag Arg Pro Pro Ser Ser Ser Ser Gly Ser Gln Val Ala Thr Ser Gly Gln 305 310 315 320 | 1018 |
| ctg gaa gaa atc aac acc aaa gag gtg gcc cag cgc atc aca gcg gag Leu Glu Glu Ile Asn Thr Lys Glu Val Ala Gln Arg Ile Thr Ala Glu 325 330 335 | 1066 |
| ctg aag cgc tac agt atc ccc cag gcg atc ttt gcg cag agg gtg ctg Leu Lys Arg Tyr Ser Ile Pro Gln Ala Ile Phe Ala Gln Arg Val Leu 340 345 350 | 1114 |
| tgc cgg tct cag ggg act ctc tcc gac ctg ctc cgg aat cca aaa ccg Cys Arg Ser Gln Gly Thr Leu Ser Asp Leu Leu Arg Asn Pro Lys Pro 355 360 365 | 1162 |
| tgg agt aaa ctc aaa tct ggc agg gag acc ttc cgc agg atg tgg aag Trp Ser Lys Leu Lys Ser Gly Arg Glu Thr Phe Arg Arg Met Trp Lys 370 375 380 | 1210 |
| tgg ctt cag gag ccc gag ttc cag cgc atg tcc gcc tta cgc ctg gca Trp Leu Gln Glu Pro Glu Phe Gln Arg Met Ser Ala Leu Arg Leu Ala 385 390 395 400 | 1258 |
| gcg tgc aaa cgc aaa gag caa gaa cca aac aaa gac agg aac aat tcc Ala Cys Lys Arg Lys Glu Gln Glu Pro Asn Lys Asp Arg Asn Asn Ser 405 410 415 | 1306 |
| cag aag aag tcc cgc ctg gtg ttc act gac ctc caa cgc cga aca ctc Gln Lys Lys Ser Arg Leu Val Phe Thr Asp Leu Gln Arg Arg Thr Leu 420 425 430 | 1354 |
| ttc gcc atc ttc aag gag aac aaa cgc ccg tca aag gag atg cag atc Phe Ala Ile Phe Lys Glu Asn Lys Arg Pro Ser Lys Glu Met Gln Ile 435 440 445 | 1402 |
| acc att tcc cag cag ctg ggc ctg gag ctc aca acc gtc agc aac ttc Thr Ile Ser Gln Gln Leu Gly Leu Glu Leu Thr Thr Val Ser Asn Phe 450 455 460 | 1450 |
| ttc atg aac gcc cgg cgc cgc agc ctg gag aag tgg caa gac gat ctg Phe Met Asn Ala Arg Arg Arg Ser Leu Glu Lys Trp Gln Asp Asp Leu 465 470 475 480 | 1498 |
| agc aca ggg ggc tcc tcg tcc acc tcc agc acg tgt acc aaa gca tga Ser Thr Gly Gly Ser Ser Ser Thr Ser Ser Thr Cys Thr Lys Ala * 485 490 495 | 1546 |

| | | | | | | | | | | | | | | | | |
|------------|------------|-------------|------------|--------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
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| gtaccggtcc | ggaattcccg | ggtcgacgat | ttcgtagcgg | cggcgcgggcg | actgaagcgc | | | | | | | | | | | 60 |
| gcgaaaagct | gaggcggcaa | cgtcgggggac | ggctgcgcgg | gacgggtctctg | taggaaggaa | | | | | | | | | | | 120 |
| cttggttccc | cctccctcag | cttcgcggccc | aaaagcagaa | gtagaaagta | atgaaaagga | | | | | | | | | | | 180 |
| caacagacct | gaggaagaag | agcaagtaat | acatgaagat | gatgaaagac | cttctgagaa | | | | | | | | | | | 240 |
| aaatgaattt | tctagacgaa | aacgtttctaa | atcagaagac | atg | gac | aat | gta | cag | | | | | | | | 295 |
| | | | | Met | Asp | Asn | Val | Gln | | | | | | | | |
| | | | | 1 | | | | 5 | | | | | | | | |
| tct | aaa | cgt | cgt | cga | tat | atg | gaa | gaa | gaa | tat | gag | gca | gaa | ttt | caa | 343 |
| Ser | Lys | Arg | Arg | Arg | Tyr | Met | Glu | Glu | Glu | Tyr | Glu | Ala | Glu | Phe | Gln | |
| | | | | 10 | | | | | 15 | | | | | 20 | | |
| gta | aag | att | aca | gcc | aaa | gga | gac | att | aac | cag | aaa | ctt | caa | aag | gtt | 391 |
| Val | Lys | Ile | Thr | Ala | Lys | Gly | Asp | Ile | Asn | Gln | Lys | Leu | Gln | Lys | Val | |
| | | | 25 | | | | | 30 | | | | | 35 | | | |
| ata | cag | tgg | ttg | ctg | gaa | gaa | aaa | ttg | tgt | gcg | ctg | cag | tgt | gct | gta | 439 |
| Ile | Gln | Trp | Leu | Leu | Glu | Glu | Lys | Leu | Cys | Ala | Leu | Gln | Cys | Ala | Val | |
| | | 40 | | | | | 45 | | | | | 50 | | | | |
| ttt | gat | aag | act | ttg | gca | gaa | ttg | aaa | aca | cga | gtg | gaa | aag | att | gaa | 487 |
| Phe | Asp | Lys | Thr | Leu | Ala | Glu | Leu | Lys | Thr | Arg | Val | Glu | Lys | Ile | Glu | |
| | 55 | | | | | 60 | | | | | 65 | | | | | |
| tgt | aac | aag | agg | cat | aaa | aca | gtt | ctc | act | gaa | cta | cag | gcc | aag | ata | 535 |
| Cys | Asn | Lys | Arg | His | Lys | Thr | Val | Leu | Thr | Glu | Leu | Gln | Ala | Lys | Ile | |
| 70 | | | | | 75 | | | | | 80 | | | | 85 | | |
| gcc | agg | tta | acc | aaa | cgc | ttt | gaa | gca | gcc | aaa | gaa | gat | ctt | aag | aaa | 583 |
| Ala | Arg | Leu | Thr | Lys | Arg | Phe | Glu | Ala | Ala | Lys | Glu | Asp | Leu | Lys | Lys | |
| | | | | 90 | | | | | 95 | | | | 100 | | | |

| | |
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| aga cat gaa cat cca ccc aac cca cca gta tca cca gga aaa act gta | 631 |
| Arg His Glu His Pro Pro Asn Pro Pro Val Ser Pro Gly Lys Thr Val | |
| 105 110 115 | |
| aat gat gtc aac agc aat aat aac atg tct tac aga aat gca ggc aca | 679 |
| Asn Asp Val Asn Ser Asn Asn Asn Met Ser Tyr Arg Asn Ala Gly Thr | |
| 120 125 130 | |
| gtg aga cag atg ctg gag tcc aaa aga aat gta agc gag agt gca cca | 727 |
| Val Arg Gln Met Leu Glu Ser Lys Arg Asn Val Ser Glu Ser Ala Pro | |
| 135 140 145 | |
| cca tcc ttt caa act cct gtg aat aca gta tct tca acc aat ctt gtc | 775 |
| Pro Ser Phe Gln Thr Pro Val Asn Thr Val Ser Ser Thr Asn Leu Val | |
| 150 155 160 165 | |
| act cct cca gca gtt gtc agt agt caa cct aaa ttg cag act cca gtg | 823 |
| Thr Pro Pro Ala Val Val Ser Ser Gln Pro Lys Leu Gln Thr Pro Val | |
| 170 175 180 | |
| act tcg ggt tcc ctc aca gca acg tca gtt ctt cct gca ccc aat aca | 871 |
| Thr Ser Gly Ser Leu Thr Ala Thr Ser Val Leu Pro Ala Pro Asn Thr | |
| 185 190 195 | |
| gct act gta gtt gct act act cag gtg cct agt gga aat ccc cag cct | 919 |
| Ala Thr Val Val Ala Thr Thr Gln Val Pro Ser Gly Asn Pro Gln Pro | |
| 200 205 210 | |
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| Thr Ile Ser Leu Gln Pro Leu Pro Val Ile Leu His Val Pro Val Ala | |
| 215 220 225 | |
| gta tcc tcc cag cct cag ctt cta cag agc cat cca ggg act ttg gtg | 1015 |
| Val Ser Ser Gln Pro Gln Leu Leu Gln Ser His Pro Gly Thr Leu Val | |
| 230 235 240 245 | |
| act aat caa cca tct ggc aat gtt gaa ttc att tct gtg caa agc cca | 1063 |
| Thr Asn Gln Pro Ser Gly Asn Val Glu Phe Ile Ser Val Gln Ser Pro | |
| 250 255 260 | |
| cct aca gtg agt ggt ctt acc aaa aat cca gta tcc ttg cca tcc ttg | 1111 |
| Pro Thr Val Ser Gly Leu Thr Lys Asn Pro Val Ser Leu Pro Ser Leu | |
| 265 270 275 | |
| cca aat ccc act aaa cca aac aac gtt cct tct gtg ccc agt cct agt | 1159 |
| Pro Asn Pro Thr Lys Pro Asn Asn Val Pro Ser Val Pro Ser Pro Ser | |
| 280 285 290 | |
| att caa agg aac cct act gcc agt gct gca cca ttg gga aca aca ctt | 1207 |
| Ile Gln Arg Asn Pro Thr Ala Ser Ala Ala Pro Leu Gly Thr Thr Leu | |
| 295 300 305 | |
| gct gtg cag gct gtt cca aca gca cac tct att gta caa gcc aca agg | 1255 |
| Ala Val Gln Ala Val Pro Thr Ala His Ser Ile Val Gln Ala Thr Arg | |
| 310 315 320 325 | |
| act tct tta ccc aca gtg ggc cca tca gga ctc tat agt cca tca act | 1303 |
| Thr Ser Leu Pro Thr Val Gly Pro Ser Gly Leu Tyr Ser Pro Ser Thr | |
| 330 335 340 | |
| aat cga ggt cct ata cag atg aaa att cca att tct gca ttt agt act | 1351 |
| Asn Arg Gly Pro Ile Gln Met Lys Ile Pro Ile Ser Ala Phe Ser Thr | |
| 345 350 355 | |

| | |
|---|------|
| tcg tct gct gca gaa cag aac agc aat acc acc cca aga att gaa aac Ser Ser Ala Ala Glu Gln Asn Ser Asn Thr Thr Pro Arg Ile Glu Asn 360 365 370 | 1399 |
| cag aca aac aaa aca ata gat gct tct gtc agt aag aaa gca gct gat Gln Thr Asn Lys Thr Ile Asp Ala Ser Val Ser Lys Lys Ala Ala Asp 375 380 385 | 1447 |
| agc aca tca cag tgt gga aaa gcc act ggc agt gat tca agt ggt gtc Ser Thr Ser Gln Cys Gly Lys Ala Thr Gly Ser Asp Ser Ser Gly Val 390 395 400 405 | 1495 |
| att gat ctc aca atg gat gat gaa gag agt gga gct tca caa gac ccc Ile Asp Leu Thr Met Asp Asp Glu Glu Ser Gly Ala Ser Gln Asp Pro 410 415 420 | 1543 |
| aaa aaa cta aat cac act cct gta tca acc atg agt tct tct cag cct Lys Lys Leu Asn His Thr Pro Val Ser Thr Met Ser Ser Ser Gln Pro 425 430 435 | 1591 |
| gtg tca cga cca ttg caa ccc ata caa cca gca ccg cct ctt caa cca Val Ser Arg Pro Leu Gln Pro Ile Gln Pro Ala Pro Pro Leu Gln Pro 440 445 450 | 1639 |
| tct ggg gtg cca aca agt gga cca tct cag acc acc ata cac tta cta Ser Gly Val Pro Thr Ser Gly Pro Ser Gln Thr Thr Ile His Leu Leu 455 460 465 | 1687 |
| cct aca gct cca act acc gtg aat gta aca cat cgt cca gta act cag Pro Thr Ala Pro Thr Thr Val Asn Val Thr His Arg Pro Val Thr Gln 470 475 480 485 | 1735 |
| gtg acc aca aga ctc cct gta cca aga gct cct gca aac cac cag gtg Val Thr Thr Arg Leu Pro Val Pro Arg Ala Pro Ala Asn His Gln Val 490 495 500 | 1783 |
| gtt tat aca act ctt cct gca cca cca gct cag gct ccc ttg cga gga Val Tyr Thr Thr Leu Pro Ala Pro Pro Ala Gln Ala Pro Leu Arg Gly 505 510 515 | 1831 |
| act gtt atg cag gct cct gct gtt cgg cag gtc aat ccc caa aat agt Thr Val Met Gln Ala Pro Ala Val Arg Gln Val Asn Pro Gln Asn Ser 520 525 530 | 1879 |
| gtt aca gtt cga gtg cct caa aca acc aca tat gtt gta aac aat gga Val Thr Val Arg Val Pro Gln Thr Thr Thr Tyr Val Val Asn Asn Gly 535 540 545 | 1927 |
| cta acc ctg gga tca aca gga cct cag ctc aca gtg cat cac cga cca Leu Thr Leu Gly Ser Thr Gly Pro Gln Leu Thr Val His His Arg Pro 550 555 560 565 | 1975 |
| cca caa gtg cat act gag ccc cca cgc ccc gtg cac cca gca ccc tta Pro Gln Val His Thr Glu Pro Pro Arg Pro Val His Pro Ala Pro Leu 570 575 580 | 2023 |
| cca gaa gct cca caa cca cag cgt ctg ccc cca gaa gct gcc agc aca Pro Glu Ala Pro Gln Pro Gln Arg Leu Pro Pro Glu Ala Ala Ser Thr 585 590 595 | 2071 |
| tct ctg cct cag aag cca cac ttg aag tta gca cgc gtt cag agt caa Ser Leu Pro Gln Lys Pro His Leu Lys Leu Ala Arg Val Gln Ser Gln 600 605 610 | 2119 |

| | |
|--|------|
| aat ggc ata gta ctg tca tgg agt gtc ctg gag gtg gat cga agc tgt | 2167 |
| Asn Gly Ile Val Leu Ser Trp Ser Val Leu Glu Val Asp Arg Ser Cys | |
| 615 620 625 | |
| gcc act gtt gat agc tac cat ctc tat gct tac cat gag gaa ccc agt | 2215 |
| Ala Thr Val Asp Ser Tyr His Leu Tyr Ala Tyr His Glu Glu Pro Ser | |
| 630 635 640 645 | |
| gcc act gtg ccc tca caa tgg aaa aag att ggg gaa gtc aag gca ctt | 2263 |
| Ala Thr Val Pro Ser Gln Trp Lys Lys Ile Gly Glu Val Lys Ala Leu | |
| 650 655 660 | |
| ccc ttg ccc atg gca tgt act ctc acc cag ttt gta tct ggt agc aaa | 2311 |
| Pro Leu Pro Met Ala Cys Thr Leu Thr Gln Phe Val Ser Gly Ser Lys | |
| 665 670 675 | |
| tac tac ttt gca gta cga gcc aag gat att tat gga cgt ttt ggg cct | 2359 |
| Tyr Tyr Phe Ala Val Arg Ala Lys Asp Ile Tyr Gly Arg Phe Gly Pro | |
| 680 685 690 | |
| ttc tgt gat cct cag tca aca gat gtg atc tct tct acc cag agc agt | 2407 |
| Phe Cys Asp Pro Gln Ser Thr Asp Val Ile Ser Ser Thr Gln Ser Ser | |
| 695 700 705 | |
| taaaccttgg agcctttata ttttcctctt ttaaaatttc caccttttgg tcttgttttt | 2467 |
| aatcttgtgc atgatacccc atgtaaaatc caccttgtgc aagatttctt ggacagatgt | 2527 |
| gtgtatacac tacatttggt tataaccaga agcaaaataa actcagccca caaagctaga | 2587 |
| atcttttcct ggacagttaa ggctttgggg tttggaaatg taaatgtgta ccttgcttta | 2647 |
| gttttgaggc tggggaatat gtgtgggtgt ttatgtgtgt ttttccttat gtaggtgtta | 2707 |
| ttgcattgga gtctccatt ttcattctca aatttacctc ttaaagtacg aagtaagtag | 2767 |
| atcaaaggat ttgagatgtg taactggcat gattctgctt ttgaaggatc tatagtatca | 2827 |
| ttttagttaa gtgggtcaaa cagaatcaaa acaaaaccca aagaaaaaaa aaacaaaatg | 2887 |
| gctaaatagt ttaaaatagg ttaattcgaa cacaggaaag gatctatttg ttgtttcttt | 2947 |
| tgtctgggtc cctgagttgt taattaggtg aaaaaagatc tgcaatggcc ccctcccttt | 3007 |
| cctaactctg cttttacatt tattttgtgc cttaaagatt aactacaaag ataaacatgg | 3067 |
| ccaaaaataa ataaataaat atggccatat gtccgntgtt gcttagtctt cccttgcagc | 3127 |
| cttttaccct tgatttctcc ttcattctcta ccaaatatag cacaactcct caagtaattt | 3187 |
| tttttttttg aaatggagtt ttgctcttgt tgcccaggct ggaaaggcgg gg | 3239 |

<210> 673
 <211> 1144
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (314) .. (1144)

<400> 673

cgggtccggaa ttcccgggtc gacccacgcg tcggagagaa gcagcttcgg ctgcagcaaa 60
 ccacgcaggt ccttcttgat catctagaac tgaccgctcc gccttgccag gagtctgcag 120
 aaccacgtgg ctagcctgcc tgaagttctc acctctccag gaaggcgggg ggtttctaat 180
 ggctgcagct gcgctggggg ctgggggctc ccgctgggac tccacttccg tggatgtcta 240
 agcttcacct ttcttgcgcc cgcaggggca tgactcaggt gaaagggagc cattttctca 300
 gaccctggc etc atg cag ccc ttc agc atc ccc gtg caa atc aca ctt 349
 Met Gln Pro Phe Ser Ile Pro Val Gln Ile Thr Leu
 1 5 10
 cag ggc agc cgg agg cgc cag ggg agg aca gcc ttt cct gcc tca ggg 397
 Gln Gly Ser Arg Arg Arg Gln Gly Arg Thr Ala Phe Pro Ala Ser Gly
 15 20 25
 aag aag aga gag aca gac tac agt gat gga gac cca cta gat gtg cac 445
 Lys Lys Arg Glu Thr Asp Tyr Ser Asp Gly Asp Pro Leu Asp Val His
 30 35 40
 aag agg ctg cca tcc agt act gga gag gac cga gcc gtg atg ctg ggg 493
 Lys Arg Leu Pro Ser Ser Thr Gly Glu Asp Arg Ala Val Met Leu Gly
 45 50 55 60
 ttt gcc atg atg ggc ttc tca gtc cta atg ttc ttc ttg ctc gga aca 541
 Phe Ala Met Met Gly Phe Ser Val Leu Met Phe Phe Leu Leu Gly Thr
 65 70 75
 acc att cta aag cct ttt atg ctc agc att cag aga gaa gaa tcg acc 589
 Thr Ile Leu Lys Pro Phe Met Leu Ser Ile Gln Arg Glu Glu Ser Thr
 80 85 90
 tgc act gcc atc cac aca gat atc atg gac gac tgg ctg gac tgt gcc 637
 Cys Thr Ala Ile His Thr Asp Ile Met Asp Asp Trp Leu Asp Cys Ala
 95 100 105
 ttc acc tgt ggt gtg cac tgc cac ggt cag ggg aag tac cca tgt ctt 685
 Phe Thr Cys Gly Val His Cys His Gly Gln Gly Lys Tyr Pro Cys Leu
 110 115 120
 cag gtg ttt gtg aac ctc agc cat cca ggt cag aaa gct ctc cta cat 733
 Gln Val Phe Val Asn Leu Ser His Pro Gly Gln Lys Ala Leu Leu His
 125 130 135 140
 tat aat gaa gag gct gtc cag ata aat ccc aag tgc ttt tac aca cct 781
 Tyr Asn Glu Glu Ala Val Gln Ile Asn Pro Lys Cys Phe Tyr Thr Pro
 145 150 155
 aag tgc cac caa gat aga aat gat ttg ctc aac agt gct ctg gac ata 829
 Lys Cys His Gln Asp Arg Asn Asp Leu Leu Asn Ser Ala Leu Asp Ile
 160 165 170
 aaa gaa ttc ttc gat cac aaa aat gga act ccc ttt tca tgc ttc tac 877
 Lys Glu Phe Phe Asp His Lys Asn Gly Thr Pro Phe Ser Cys Phe Tyr
 175 180 185
 agt cca gcc agc caa tct gaa gat gtc att ctt ata aaa aag tat gac 925
 Ser Pro Ala Ser Gln Ser Glu Asp Val Ile Leu Ile Lys Lys Tyr Asp
 190 195 200

caa atg gct atc ttc cac tgt tta ttt tgg cct tca ctg act ctg cta 973
 Gln Met Ala Ile Phe His Cys Leu Phe Trp Pro Ser Leu Thr Leu Leu
 205 210 215 220
 ggt ggt gcc ctg att gtt ggc atg gtg aga tta aca caa cac ctg tcc 1021
 Gly Gly Ala Leu Ile Val Gly Met Val Arg Leu Thr Gln His Leu Ser
 225 230 235
 tta ctg tgt gaa aaa tat agc act gta gtc aga gat gag gta ggt gga 1069
 Leu Leu Cys Glu Lys Tyr Ser Thr Val Val Arg Asp Glu Val Gly Gly
 240 245 250
 aaa gta cct tat ata gaa cag cat cag ttc aaa ctg tgc att atg agg 1117
 Lys Val Pro Tyr Ile Glu Gln His Gln Phe Lys Leu Cys Ile Met Arg
 255 260 265
 agg agc aaa gga aga gca gag aaa tct 1144
 Arg Ser Lys Gly Arg Ala Glu Lys Ser
 270 275

<210> 674
 <211> 1310
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (99) .. (974)

<400> 674
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 actagtccag tgtggtggaa ttcgccctga gcgtctcc atg gcc tgc ctg agc 113
 Met Ala Cys Leu Ser
 1 5
 ccc tcg cag ctc cag aag ttc caa cag gat gga ttc ctg gtg ctg gaa 161
 Pro Ser Gln Leu Gln Lys Phe Gln Gln Asp Gly Phe Leu Val Leu Glu
 10 15 20
 gga ttc ttg tct gcg gaa gag tgt gtg gcc atg caa caa agg att ggc 209
 Gly Phe Leu Ser Ala Glu Glu Cys Val Ala Met Gln Gln Arg Ile Gly
 25 30 35
 gag ata gtg gct gaa atg gat gtt cct ctc cac tgc cgc aca gaa ttc 257
 Glu Ile Val Ala Glu Met Asp Val Pro Leu His Cys Arg Thr Glu Phe
 40 45 50
 tcc acc cag gaa gag gag cag ctt cga gcc cag ggc agc aca gac tat 305
 Ser Thr Gln Glu Glu Glu Gln Leu Arg Ala Gln Gly Ser Thr Asp Tyr
 55 60 65
 ttc ttg agc agt ggt gac aag att cga ttc ttc ttt gag aaa ggc gtt 353
 Phe Leu Ser Ser Gly Asp Lys Ile Arg Phe Phe Phe Glu Lys Gly Val
 70 75 80 85
 ttt gat gag aaa gga aat ttc ctg gtc cct ccg gag aaa tcc atc aac 401
 Phe Asp Glu Lys Gly Asn Phe Leu Val Pro Pro Glu Lys Ser Ile Asn
 90 95 100

aaa att ggc cac gct ctg cac gcc cac gac ccc gtc ttc aag agc atc 449
 Lys Ile Gly His Ala Leu His Ala His Asp Pro Val Phe Lys Ser Ile
 105 110 115

aca cac tcc ttc aag gtg cag acc ttg gcc aga agt ctg ggc ctc cag 497
 Thr His Ser Phe Lys Val Gln Thr Leu Ala Arg Ser Leu Gly Leu Gln
 120 125 130

atg ccc gtg gtg gtg cag agc atg tac atc ttt aag caa cct cac ttt 545
 Met Pro Val Val Val Gln Ser Met Tyr Ile Phe Lys Gln Pro His Phe
 135 140 145

ggc ggt gaa gtc tcc cct cat cag gac gcc tcc ttc ctg tac acg gag 593
 Gly Gly Glu Val Ser Pro His Gln Asp Ala Ser Phe Leu Tyr Thr Glu
 150 155 160 165

ccc ctg ggc cgg gtg ctg ggc gtg tgg atc gca gtg gag gat gcc acg 641
 Pro Leu Gly Arg Val Leu Gly Val Trp Ile Ala Val Glu Asp Ala Thr
 170 175 180

ctg gag aac ggc tgt ctc tgg ttc atc cct ggc tcc cac acc agt ggt 689
 Leu Glu Asn Gly Cys Leu Trp Phe Ile Pro Gly Ser His Thr Ser Gly
 185 190 195

gtg tca aga agg atg gtc cgg gcc cct gtt ggc tca gcg cct ggt acc 737
 Val Ser Arg Arg Met Val Arg Ala Pro Val Gly Ser Ala Pro Gly Thr
 200 205 210

agc ttc ctt ggg tca gag cca gcc cgg gat aac agc ctc ttt gtg ccc 785
 Ser Phe Leu Gly Ser Glu Pro Ala Arg Asp Asn Ser Leu Phe Val Pro
 215 220 225

acc cca gtg cag aga ggg gcc ctg gtc ctc atc cat gga gaa gtg gta 833
 Thr Pro Val Gln Arg Gly Ala Leu Val Leu Ile His Gly Glu Val Val
 230 235 240 245

cac aag agc aag cag aac ctc tct gac cgc tgc cgc cag gcc tac act 881
 His Lys Ser Lys Gln Asn Leu Ser Asp Arg Ser Arg Gln Ala Tyr Thr
 250 255 260

ttc cac ctc atg gag gcc tct ggc acc acc tgg agc ccg gag aac tgg 929
 Phe His Leu Met Glu Ala Ser Gly Thr Thr Trp Ser Pro Glu Asn Trp
 265 270 275

ctc cag cca aca gct gaa ctg ccc ttt ccc caa ctg tac acc taa agg 977
 Leu Gln Pro Thr Ala Glu Leu Pro Phe Pro Gln Leu Tyr Thr *
 280 285 290

ctctcgcagg gcaggagccc tcgcccctcc cgggtgaagc tgtgggctgt aaacaccagt 1037

gccttgctca gcctcctggt tgcaacaggg aggtcttgtc tccctcctg ggctttcttc 1097

ctgccctgtg ggcagcagcc taggctgggt caggggcttc cctaagatct tcacctctct 1157

gcctccctac tgccccaaca tagccttgag gaggtttctc agccaccaa gggttctggc 1217

cccttctcac tctcctctcc tctcagatgg aactctggtt attatggtgt tagttatcga 1277

ataaaaacga cttcagaatg caaaaaaaaaaaa aaa 1310

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<220>  
<221> CDS  
<222> (164) .. (364)
```

```
<210> 676
<211> 929
<212> DNA
<213> Homo sapiens
```

```
<220>  
<221> CDS  
<222> (78) .. (779)
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```
<220>
<221> misc_feature
<222> (1) ... (929)
<223> n = a,t,c or g
```

<400> 676
ctgaattccc qggtcgaacc acgcgtccgc qcgtcgggca gcgggcgcgg cggccccgcg 60

| | | |
|---|---|-----|
| cagccatgga ctggctc | atg ggg aag tcc aaa gcc aag ccc aat ggc aag | 110 |
| | Met Gly Lys Ser Lys Ala Lys Pro Asn Gly Lys | |
| | 1 5 10 | |
| aag ccc gct gcg gag gag agg aag gcc tac ctg gag cct gag cac acc | 158 | |
| Lys Pro Ala Ala Glu Glu Arg Lys Ala Tyr Leu Glu Pro Glu His Thr | | |
| | 15 20 25 | |
| aag gcc agg atc acc gac ttc cag ttc aag gag ctg gtg gtg ctg ccc | 206 | |
| Lys Ala Arg Ile Thr Asp Phe Gln Phe Lys Glu Leu Val Val Leu Pro | | |
| | 30 35 40 | |
| cgc gag att gac ctt aac gag tgg ctg gcc agc aac acc acg acg ttt | 254 | |
| Arg Glu Ile Asp Leu Asn Glu Trp Leu Ala Ser Asn Thr Thr Thr Phe | | |
| | 45 50 55 | |
| ttc cac cac atc aac ctg cag tat agc acc atc tcg gag ttc tgc aca | 302 | |
| Phe His His Ile Asn Leu Gln Tyr Ser Thr Ile Ser Glu Phe Cys Thr | | |
| | 60 65 70 75 | |
| gga gag acg tgt cag acg atg gcc gtg tgc aac aca cag tac tac tgg | 350 | |
| Gly Glu Thr Cys Gln Thr Met Ala Val Cys Asn Thr Gln Tyr Tyr Trp | | |
| | 80 85 90 | |
| tat gac gag cgg ggg aag aag gtc aag tgc acg gcc cca cag tac gtt | 398 | |
| Tyr Asp Glu Arg Gly Lys Lys Val Lys Cys Thr Ala Pro Gln Tyr Val | | |
| | 95 100 105 | |
| gac ttc gtc atg agc tcc gtg cag aag ctg gtg acg gat gag gac gtg | 446 | |
| Asp Phe Val Met Ser Ser Val Gln Lys Leu Val Thr Asp Glu Asp Val | | |
| | 110 115 120 | |
| ttc ccc aca aaa tac ggc aga gaa ttc ccc agc tcc ttt gag tcc ctg | 494 | |
| Phe Pro Thr Lys Tyr Gly Arg Glu Phe Pro Ser Ser Phe Glu Ser Leu | | |
| | 125 130 135 | |
| gtg agg aag atc tgc aga cac ctg ttc cac gtg ctg gca cac atc tac | 542 | |
| Val Arg Lys Ile Cys Arg His Leu Phe His Val Leu Ala His Ile Tyr | | |
| | 140 145 150 155 | |
| tgg gcc cac ttc aag gag acg ctg gcc ctg gag ctg cac gga cac ttg | 590 | |
| Trp Ala His Phe Lys Glu Thr Leu Ala Leu Glu Leu His Gly His Leu | | |
| | 160 165 170 | |
| aac acg ctc tac gtc cac ttc atc ctc ttt gct cgg gag ttc aac ctg | 638 | |
| Asn Thr Leu Tyr Val His Phe Ile Leu Phe Ala Arg Glu Phe Asn Leu | | |
| | 175 180 185 | |
| ctg gac ccc aaa gag acc gcc atc atg gac gac ctc acc gag gtg cta | 686 | |
| Leu Asp Pro Lys Glu Thr Ala Ile Met Asp Asp Leu Thr Glu Val Leu | | |
| | 190 195 200 | |
| tgc agc ggg gcc ggc ggg gtc cac agt ggg ggc agt ggg gat ggg gcc | 734 | |
| Cys Ser Gly Ala Gly Gly Val His Ser Gly Gly Ser Gly Asp Gly Ala | | |
| | 205 210 215 | |
| ggc agc ggg ggc ccg gga gca cag aac cac gtg aag gag aga tga gcc | 782 | |
| Gly Ser Gly Gly Pro Gly Ala Gln Asn His Val Lys Glu Arg * | | |
| | 220 225 230 | |
| ccccgggccg gacaggggca cacgtgtgca aagagacggt ggtgtgtgtt ctctcctgca | 842 | |
| tctgcgtgtn cacacatgtg ctgggcacgc gtgtggcgag gacttgcagg gccccggact | 902 | |

gacctggtgt gtggctgcat aatcacg

929

<210> 677
 <211> 2663
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (894) .. (1724)

<400> 677
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 tttctgcctg ggcttggtcg gccgcgcttc agcaccgcgc gagccggaca gcgcctgctg 120
 catggagctg cccgccgcgg ccggggacgc agtcgggagt cccgccgcgc ccgccgccct 180
 catcttcccc gggggctccg gggagctaga actggcgtaa gaggaggagc tggcgctgct 240
 ggccggccggg ggagcggccg tccgaccccg gggaacaccc tcaggccgag cctgggtctc 300
 tggccgaggg ggccggaccg cagccgcgcg cctcccagga ccccgagctg ctgtcgggtga 360
 tccgacagaa ggagaaggat ctggtgttgg cggcccggtt gggtaaggcg ctgctcgaga 420
 ggaaccagga catgagccgg cagtacgagc agatgcataa ggagctgaca gacaagctcg 480
 agcacttaga gcaagagaaa catgaattga gaagacgatt tgagaaccga gaaggggagt 540
 gggaaggccg agtgtcagag ctggagagtg atgtgaagca gctacaggat gagttggaga 600
 ggcagcagat tcatctgcgg gaagcagatc gagaaaaatc acgggctgtc caggaactgt 660
 cggaacagaa ccaaaggcta ttggatcagc tcagcaggaa aattaagact tggatttact 720
 attctacctc agcccttctt gtatattgaa aataaaacta ccaactcttc agttaccgga 780
 ggaaaaagaa cttctctgat atcatccctc agcactgatg ttctcatggg agcagtgccg 840
 tgtctgcatg gtctcctctg tttcaggcat cagaagttga gagacaactc tcc atg 896
 Met
 1
 cag gtc cac gcc ctc aga gaa gac ttt cgg gag aaa aac tca tca acc 944
 Gln Val His Ala Leu Arg Glu Asp Phe Arg Glu Lys Asn Ser Ser Thr
 5 10 15
 aac cag cac att atc cgg ctg gag agc ctt cag gcc gag atc aag atg 992
 Asn Gln His Ile Ile Arg Leu Glu Ser Leu Gln Ala Glu Ile Lys Met
 20 25 30
 ctg tca gat cgg aaa cgg gag ctg gag cat cgt ctc agc gct act tta 1040
 Leu Ser Asp Arg Lys Arg Glu Leu Glu His Arg Leu Ser Ala Thr Leu
 35 40 45
 gag gaa aat gac ctg ctc caa ggg acc gtg gag gag cta cag gac cgg 1088
 Glu Glu Asn Asp Leu Leu Gln Gly Thr Val Glu Glu Leu Gln Asp Arg
 50 55 60 65

| | |
|--|------|
| gtg cta atc ctg gag agg cag ggc cat gac aag gac cta cag ctg cac | 1136 |
| Val Leu Ile Leu Glu Arg Gln Gly His Asp Lys Asp Leu Gln Leu His | |
| 70 75 80 | |
| caa agc cag ctg gag ctt cag gag gtg cgt ctc tcc tgc cga cag ctg | 1184 |
| Gln Ser Gln Leu Glu Leu Gln Glu Val Arg Leu Ser Cys Arg Gln Leu | |
| 85 90 95 | |
| cag gtg aag gtg gaa gaa ctc act gag gag agg agt ctg cag agc tct | 1232 |
| Gln Val Lys Val Glu Glu Leu Thr Glu Glu Arg Ser Leu Gln Ser Ser | |
| 100 105 110 | |
| gcc gcc acc agc aca tcc ctc ctg tca gag atc gag cag agc atg gag | 1280 |
| Ala Ala Thr Ser Thr Ser Leu Leu Ser Glu Ile Glu Gln Ser Met Glu | |
| 115 120 125 | |
| gct gag gag ctg gag cag gag cga gag cag gtg aca ctg ctg agt gtg | 1328 |
| Ala Glu Glu Leu Glu Gln Glu Arg Glu Gln Val Thr Leu Leu Ser Val | |
| 130 135 140 145 | |
| gag atg act gcc cta aaa gag gag aga gac cga ctc aga gtc act tct | 1376 |
| Glu Met Thr Ala Leu Lys Glu Glu Arg Asp Arg Leu Arg Val Thr Ser | |
| 150 155 160 | |
| gag gac aag gag cca aag gag cag ctt cag aag gcc atc agg gac cgc | 1424 |
| Glu Asp Lys Glu Pro Lys Glu Gln Leu Gln Lys Ala Ile Arg Asp Arg | |
| 165 170 175 | |
| gac gag gcc att gca aag aag aat gct gtg gag ctg gaa ctt gcc aag | 1472 |
| Asp Glu Ala Ile Ala Lys Lys Asn Ala Val Glu Leu Glu Leu Ala Lys | |
| 180 185 190 | |
| tgc agg atg gat atg atg tct ctg aac agc cag ttg ctg gat gcc att | 1520 |
| Cys Arg Met Asp Met Met Ser Leu Asn Ser Gln Leu Leu Asp Ala Ile | |
| 195 200 205 | |
| cag cag aaa ctg aac ctc tgc cag cag ctg gaa gct tgg cag gat gac | 1568 |
| Gln Gln Lys Leu Asn Leu Ser Gln Gln Leu Glu Ala Trp Gln Asp Asp | |
| 210 215 220 225 | |
| atg cac agg gtc att gac cgg cag ctg atg gac acg cac ctg aaa gaa | 1616 |
| Met His Arg Val Ile Asp Arg Gln Leu Met Asp Thr His Leu Lys Glu | |
| 230 235 240 | |
| cgg agc cag ccg gct gct gcc ctc tgc agg ggc cac agc gct ggg cgg | 1664 |
| Arg Ser Gln Pro Ala Ala Ala Leu Cys Arg Gly His Ser Ala Gly Arg | |
| 245 250 255 | |
| ggg gat gag ccc agc atc gct gaa ggc aaa cga ctc ttc tca ttc ttc | 1712 |
| Gly Asp Glu Pro Ser Ile Ala Glu Gly Lys Arg Leu Phe Ser Phe Phe | |
| 260 265 270 | |
| agg aaa att taa gtt gggaggagtc aggccaccaa agatgggtgg actggaggca | 1767 |
| Arg Lys Ile * | |
| 275 | |
| gctggaaagg cgggtgcaggc aaggcctccc ctgcagcttg cacctcagca gctgccctgc | 1827 |
| ccctcatgct agggcccccatt ggggtccggga gggcctgctc cctttcgtcg gtggggatgg | 1887 |
| agacctagag gtggggggcct gccttgggcca ctgaaggctt cccttggccc accgcctgga | 1947 |
| gaagcccagg cgtgggcttc tccaggacca cgtgcttgag cagggttagg ccacctccca | 2007 |

gaggggcccc ttggtgttgg gctttgcagc tcacacccaa cagatcgcag cccaccccca 2067
 ggcactgctg cctccttgat tttagcaa at gggaacaga aggaatggag gcccttctct 2127
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 Lys Leu Asn Pro Arg Pro Gly Lys Val Val Ile Tyr Ser Glu Pro Asp
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 Val Ser Glu Lys Cys Ile Glu Val Phe Ser Asp Ile Gln Asp Cys Ser
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 Ser Trp Ser Leu Ser Pro Val Ile Leu Ile Lys Val Val Arg Gly Cys
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 Trp Ile Leu Tyr Glu Gln Pro Asn Phe Glu Gly His Ser Ile Pro Leu
 85 90 95
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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Val | Glu | Arg | His | Glu | Glu | Ala | Glu | Ser | Asp | Lys | Pro | Val | Val | Ile | Gly | | |
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| Ser | Ile | Arg | His | Val | Val | Gln | Asp | Tyr | Arg | Val | Ser | His | Ile | Asp | Leu | | |
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| ttt | act | gaa | cca | gaa | ggg | tta | gga | atc | cta | agt | tcc | tac | ttt | gat | gat | 480 | |
| Phe | Thr | Glu | Pro | Glu | Gly | Leu | Gly | Ile | Leu | Ser | Ser | Tyr | Phe | Asp | Asp | | |
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| ggg | gtt | cct | ttc | atc | ctg | gaa | cct | ggg | gaa | tac | cct | gac | ttg | tcc | ttc | 624 | |
| Gly | Val | Pro | Phe | Ile | Leu | Glu | Pro | Gly | Glu | Tyr | Pro | Asp | Leu | Ser | Phe | | |
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| tgg | gat | aca | gaa | gca | gcg | tac | att | gga | tcc | atg | cgg | cct | ctg | aaa | atg | 672 | |
| Trp | Asp | Thr | Glu | Ala | Ala | Tyr | Ile | Gly | Ser | Met | Arg | Pro | Leu | Lys | Met | | |
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| cct | cca | gaa | gac | aac | aga | agg | aag | cca | gtt | ttg | ggg | aaa | ctt | ggc | act | 768 | |
| Pro | Pro | Glu | Asp | Asn | Arg | Arg | Lys | Pro | Val | Leu | Gly | Lys | Leu | Gly | Thr | | |
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| cta | ttc | act | gca | gga | agg | aga | aga | aac | agt | aga | aac | ggg | tta | gag | agt | 816 | |
| Leu | Phe | Thr | Ala | Gly | Arg | Arg | Arg | Asn | Ser | Arg | Asn | Gly | Leu | Glu | Ser | | |
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| ccc | acc | aga | tca | aat | gcc | aaa | cca | ctc | tct | ccc | aaa | gat | gtg | gta | gcc | 864 | |
| Pro | Thr | Arg | Ser | Asn | Ala | Lys | Pro | Leu | Ser | Pro | Lys | Asp | Val | Val | Ala | | |
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| tct | cct | aag | ctc | cca | gag | aga | gag | agt | gag | agg | agc | aga | tct | cag | agc | 912 | |
| Ser | Pro | Lys | Leu | Pro | Glu | Arg | Glu | Ser | Glu | Arg | Ser | Arg | Ser | Gln | Ser | | |
| | | 290 | | | | 295 | | | | | 300 | | | | | | |
| agc | caa | ctg | aag | caa | acg | gac | aca | agc | gag | gag | ggc | tcc | ccg | cgg | gag | 960 | |
| Ser | Gln | Leu | Lys | Gln | Thr | Asp | Thr | Ser | Glu | Glu | Gly | Ser | Pro | Arg | Glu | | |
| | 305 | | | | 310 | | | | | 315 | | | | | 320 | | |
| aat | ccc | cga | gag | gca | gag | ggc | gag | ctc | ccc | gag | agc | ggg | ggc | ccc | gca | 1008 | |
| Asn | Pro | Arg | Glu | Ala | Glu | Gly | Glu | Leu | Pro | Glu | Ser | Gly | Gly | Pro | Ala | | |
| | | | | 325 | | | | | 330 | | | | | 335 | | | |
| gcc | ccc | cct | gac | gcc | gag | ctg | tca | cct | cgc | tgg | agc | agc | agt | gca | gcg | 1056 | |
| Ala | Pro | Pro | Asp | Ala | Glu | Leu | Ser | Pro | Arg | Trp | Ser | Ser | Ser | Ala | Ala | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| gct | gtg | gct | gtg | cag | cag | tgc | cat | gaa | aat | gat | tca | ccc | caa | tta | gaa | 1104 | |
| Ala | Val | Ala | Val | Gln | Gln | Cys | His | Glu | Asn | Asp | Ser | Pro | Gln | Leu | Glu | | |
| | | 355 | | | | 360 | | | | | | 365 | | | | | |
| cct | ctg | gag | gca | gag | gga | gag | cct | ttc | cca | gat | gcc | acc | acc | act | gcc | 1152 | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Pro | Leu | Glu | Ala | Glu | Gly | Glu | Pro | Phe | Pro | Asp | Ala | Thr | Thr | Thr | Ala | | |
| 370 | | | | | | 375 | | | | | 380 | | | | | | |
| aag | cag | ctg | cat | tcc | tcg | ccg | gga | aat | tcc | tcc | agg | caa | gag | aac | gca | 1200 | |
| Lys | Gln | Leu | His | Ser | Ser | Pro | Gly | Asn | Ser | Ser | Arg | Gln | Glu | Asn | Ala | | |
| 385 | | | | | 390 | | | | 395 | | | | | 400 | | | |
| gag | acg | ccc | gcc | cgc | agt | ccg | ggg | gag | gac | gct | tca | cca | ggg | gct | ggc | 1248 | |
| Glu | Thr | Pro | Ala | Arg | Ser | Pro | Gly | Glu | Asp | Ala | Ser | Pro | Gly | Ala | Gly | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| cac | gaa | cag | gag | gct | ttc | ctg | ggg | gtg | agg | ggg | gcg | cca | ggg | tcg | ccc | 1296 | |
| His | Glu | Gln | Glu | Ala | Phe | Leu | Gly | Val | Arg | Gly | Ala | Pro | Gly | Ser | Pro | | |
| | | | | 420 | | | | 425 | | | | | 430 | | | | |
| acc | cag | gag | cgg | ccc | gcg | gga | gga | cta | ggc | gag | gcc | cct | aac | gca | gcc | 1344 | |
| Thr | Gln | Glu | Arg | Pro | Ala | Gly | Gly | Leu | Gly | Glu | Ala | Pro | Asn | Ala | Ala | | |
| | | | 435 | | | | 440 | | | | | 445 | | | | | |
| ccc | agt | gtg | tgt | gcc | gaa | gaa | ggc | tcc | ctg | ggg | ccc | cgc | aac | gcc | cgc | 1392 | |
| Pro | Ser | Val | Cys | Ala | Glu | Glu | Gly | Ser | Leu | Gly | Pro | Arg | Asn | Ala | Arg | | |
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| agc | cag | ccc | ccc | aag | ggc | gcg | tct | gat | ttg | cca | ggg | gag | cct | ccg | gcc | 1440 | |
| Ser | Gln | Pro | Pro | Lys | Gly | Ala | Ser | Asp | Leu | Pro | Gly | Glu | Pro | Pro | Ala | | |
| 465 | | | | | 470 | | | | | 475 | | | | | 480 | | |
| gag | ggc | gca | gcg | cac | acg | gcc | agc | tcc | gcg | cag | gca | gac | tgc | aca | gcc | 1488 | |
| Glu | Gly | Ala | Ala | His | Thr | Ala | Ser | Ser | Ala | Gln | Ala | Asp | Cys | Thr | Ala | | |
| | | | | 485 | | | | 490 | | | | | | 495 | | | |
| cgc | ccc | aag | ggg | cac | gcc | cac | cct | gct | aag | gtg | cta | act | ttg | gac | atc | 1536 | |
| Arg | Pro | Lys | Gly | His | Ala | His | Pro | Ala | Lys | Val | Leu | Thr | Leu | Asp | Ile | | |
| | | | 500 | | | | | 505 | | | | | | 510 | | | |
| tac | ttg | agt | aag | act | gag | ggg | gca | caa | gtg | gac | gag | ccg | gtc | gtg | att | 1584 | |
| Tyr | Leu | Ser | Lys | Thr | Glu | Gly | Ala | Gln | Val | Asp | Glu | Pro | Val | Val | Ile | | |
| | | | 515 | | | | 520 | | | | | | 525 | | | | |
| act | ccc | aga | gcg | gaa | gat | tgc | ggg | gac | tgg | gac | gac | atg | gag | aag | agg | 1632 | |
| Thr | Pro | Arg | Ala | Glu | Asp | Cys | Gly | Asp | Trp | Asp | Asp | Met | Glu | Lys | Arg | | |
| | | | 530 | | | 535 | | | | | 540 | | | | | | |
| tcc | agc | ggc | cgt | agg | tcg | ggg | agg | cgg | agg | ggg | tcg | cag | aaa | tcc | acc | 1680 | |
| Ser | Ser | Gly | Arg | Arg | Ser | Gly | Arg | Arg | Arg | Gly | Ser | Gln | Lys | Ser | Thr | | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | | |
| gac | tcc | ccc | ggc | gcg | gac | gcc | gag | ctc | cct | gag | agc | gct | gcc | agg | gac | 1728 | |
| Asp | Ser | Pro | Gly | Ala | Asp | Ala | Glu | Leu | Pro | Glu | Ser | Ala | Ala | Arg | Asp | | |
| | | | | 565 | | | | | 570 | | | | | 575 | | | |
| gac | gcg | gtg | ttc | gac | gac | gag | gtg | gcg | cca | aac | gcg | gcc | agc | gat | aac | 1776 | |
| Asp | Ala | Val | Phe | Asp | Asp | Glu | Val | Ala | Pro | Asn | Ala | Ala | Ser | Asp | Asn | | |
| | | | 580 | | | | | 585 | | | | | | 590 | | | |
| gcc | tcg | gcg | gaa | aag | aaa | gtg | aaa | tct | ccg | cgg | gca | gcc | ctc | gac | ggg | 1824 | |
| Ala | Ser | Ala | Glu | Lys | Lys | Val | Lys | Ser | Pro | Arg | Ala | Ala | Leu | Asp | Gly | | |
| | | | 595 | | | | 600 | | | | | 605 | | | | | |
| ggc | gtt | gcc | tcc | gct | gcg | agc | cca | gag | tcc | aag | ccc | agc | ccc | ggg | acc | 1872 | |
| Gly | Val | Ala | Ser | Ala | Ala | Ser | Pro | Glu | Ser | Lys | Pro | Ser | Pro | Gly | Thr | | |
| | | | 610 | | | 615 | | | | | 620 | | | | | | |
| aaa | ggg | cag | ctc | cga | ggg | gag | tcg | gac | cgg | agc | aaa | cag | cca | ccc | ccg | 1920 | |

| | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|------|
| Lys 625 | Gly | Gln | Leu | Arg | Gly 630 | Glu | Ser | Asp | Arg | Ser 635 | Lys | Gln | Pro | Pro | Pro 640 | |
| gct | tcg | tcc | ccc | acg | aag | agg | aag | ggc | agg | agc | cgt | gcc | ctc | gag | gcc | 1968 |
| Ala | Ser | Ser | Pro | Thr | Lys | Arg | Lys | Gly | Arg | Ser | Arg | Ala | Leu | Glu | Ala | |
| | | | | 645 | | | | | 650 | | | | | 655 | | |
| gtg | ccc | gcc | ccg | ccc | gcc | agc | ggc | ccc | cgg | gct | ccc | gcc | aag | gag | tcc | 2016 |
| Val | Pro | Ala | Pro | Pro | Ala | Ser | Gly | Pro | Arg | Ala | Pro | Ala | Lys | Glu | Ser | |
| | | | 660 | | | | | 665 | | | | | 670 | | | |
| cca | ccc | aag | agg | gtg | ccc | gat | ccc | agc | cca | gtc | acc | aag | ggc | act | gcg | 2064 |
| Pro | Pro | Lys | Arg | Val | Pro | Asp | Pro | Ser | Pro | Val | Thr | Lys | Gly | Thr | Ala | |
| | | 675 | | | | | 680 | | | | | 685 | | | | |
| gcc | gag | agc | ggg | gag | gag | gcg | gcg | cgg | gcc | atc | ccc | cgc | gag | ctc | ccg | 2112 |
| Ala | Glu | Ser | Gly | Glu | Glu | Ala | Ala | Arg | Ala | Ile | Pro | Arg | Glu | Leu | Pro | |
| | 690 | | | | | 695 | | | | 700 | | | | | | |
| gtc | aag | agc | agc | tcg | ctg | ctg | ccg | gag | atc | aag | ccc | gag | cac | aag | agg | 2160 |
| Val | Lys | Ser | Ser | Ser | Leu | Leu | Pro | Glu | Ile | Lys | Pro | Glu | His | Lys | Arg | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | |
| ggc | ccg | ctc | ccc | aac | cac | ttc | aac | ggc | cgg | gca | gag | gga | ggt | cga | agc | 2208 |
| Gly | Pro | Leu | Pro | Asn | His | Phe | Asn | Gly | Arg | Ala | Glu | Gly | Gly | Arg | Ser | |
| | | | | 725 | | | | 730 | | | | | | 735 | | |
| aga | gag | ctg | ggc | aga | gcg | gcc | gga | gcg | cct | gga | gct | tct | gac | gcc | gac | 2256 |
| Arg | Glu | Leu | Gly | Arg | Ala | Ala | Gly | Ala | Pro | Gly | Ala | Ser | Asp | Ala | Asp | |
| | | | 740 | | | | | 745 | | | | | 750 | | | |
| ggc | ttg | aag | ccc | agg | aac | cat | ttc | ggc | gtg | ggc | agg | tcg | aca | gtg | acc | 2304 |
| Gly | Leu | Lys | Pro | Arg | Asn | His | Phe | Gly | Val | Gly | Arg | Ser | Thr | Val | Thr | |
| | | 755 | | | | | 760 | | | | | 765 | | | | |
| act | aaa | gtg | acc | ctc | cct | gcc | aag | ccc | aaa | cat | gtg | gaa | cta | aat | ctt | 2352 |
| Thr | Lys | Val | Thr | Leu | Pro | Ala | Lys | Pro | Lys | His | Val | Glu | Leu | Asn | Leu | |
| | 770 | | | | | 775 | | | | | 780 | | | | | |
| aaa | acc | cct | aag | aat | ctt | gac | agt | ttg | gga | aat | gag | cac | aat | cca | ttt | 2400 |
| Lys | Thr | Pro | Lys | Asn | Leu | Asp | Ser | Leu | Gly | Asn | Glu | His | Asn | Pro | Phe | |
| 785 | | | | | 790 | | | | | 795 | | | | 800 | | |
| agc | cag | cca | gtt | cac | aaa | ggc | aac | act | gcc | acc | aaa | atc | tcc | tta | ttt | 2448 |
| Ser | Gln | Pro | Val | His | Lys | Gly | Asn | Thr | Ala | Thr | Lys | Ile | Ser | Leu | Phe | |
| | | | | 805 | | | | | 810 | | | | | 815 | | |
| gaa | aac | aaa | cgg | aca | aac | agt | agc | cca | aga | cac | act | gac | att | cga | ggc | 2496 |
| Glu | Asn | Lys | Arg | Thr | Asn | Ser | Ser | Pro | Arg | His | Thr | Asp | Ile | Arg | Gly | |
| | | | 820 | | | | | 825 | | | | | 830 | | | |
| caa | agg | aat | act | cct | gcc | tct | agt | aaa | acg | ttt | gtt | ggg | agg | gca | aag | 2544 |
| Gln | Arg | Asn | Thr | Pro | Ala | Ser | Ser | Lys | Thr | Phe | Val | Gly | Arg | Ala | Lys | |
| | | 835 | | | | | 840 | | | | | 845 | | | | |
| ctg | aat | tta | gcc | aaa | aaa | gcc | aaa | gaa | atg | gag | caa | cct | gaa | aag | aaa | 2592 |
| Leu | Asn | Leu | Ala | Lys | Lys | Ala | Lys | Glu | Met | Glu | Gln | Pro | Glu | Lys | Lys | |
| | 850 | | | | | 855 | | | | | 860 | | | | | |
| gta | atg | cca | aac | agt | ccc | cag | aat | ggt | gtg | ctg | gtt | aag | gaa | act | gct | 2640 |
| Val | Met | Pro | Asn | Ser | Pro | Gln | Asn | Gly | Val | Leu | Val | Lys | Glu | Thr | Ala | |
| 865 | | | | | 870 | | | | 875 | | | | | 880 | | |
| ata | gaa | acc | aaa | gtt | acc | gtc | tcg | gaa | gaa | gag | att | ctg | cca | gca | acc | 2688 |

| | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|--|------|
| Ile | Glu | Thr | Lys | Val | Thr | Val | Ser | Glu | Glu | Glu | Ile | Leu | Pro | Ala | Thr | | |
| | | | | 885 | | | | | 890 | | | | | 895 | | | |
| aga | gga | atg | aat | gga | gac | tct | tct | gag | aat | caa | gct | ctt | ggt | cct | cag | | 2736 |
| Arg | Gly | Met | Asn | Gly | Asp | Ser | Ser | Glu | Asn | Gln | Ala | Leu | Gly | Pro | Gln | | |
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| cct | aac | caa | gat | gat | aaa | gca | gat | gta | caa | aca | gat | gct | ggc | tgc | ctt | | 2784 |
| Pro | Asn | Gln | Asp | Asp | Lys | Ala | Asp | Val | Gln | Thr | Asp | Ala | Gly | Cys | Leu | | |
| | | 915 | | | | | 920 | | | | | 925 | | | | | |
| tca | gaa | cca | gtg | gct | tct | gct | ctg | att | cct | gtc | aag | gat | cat | aag | ctc | | 2832 |
| Ser | Glu | Pro | Val | Ala | Ser | Ala | Leu | Ile | Pro | Val | Lys | Asp | His | Lys | Leu | | |
| | 930 | | | | | 935 | | | | | 940 | | | | | | |
| tta | gag | aag | gag | gac | tca | gag | gct | gca | gac | agc | aaa | agc | ctt | gta | ctt | | 2880 |
| Leu | Glu | Lys | Glu | Asp | Ser | Glu | Ala | Ala | Asp | Ser | Lys | Ser | Leu | Val | Leu | | |
| 945 | | | | | 950 | | | | 955 | | | | | | 960 | | |
| gaa | aat | gta | acc | gat | aca | gca | caa | gac | atc | ccc | acc | act | gtg | gat | acc | | 2928 |
| Glu | Asn | Val | Thr | Asp | Thr | Ala | Gln | Asp | Ile | Pro | Thr | Thr | Val | Asp | Thr | | |
| | | | | 965 | | | | | 970 | | | | | 975 | | | |
| aaa | gat | tta | cct | cca | acg | gcc | atg | cca | aag | cca | cag | cat | aca | ttt | tct | | 2976 |
| Lys | Asp | Leu | Pro | Pro | Thr | Ala | Met | Pro | Lys | Pro | Gln | His | Thr | Phe | Ser | | |
| | | | 980 | | | | | 985 | | | | | 990 | | | | |
| gac | tca | cag | tcc | cct | gct | gag | tca | tct | cct | ggg | cct | tct | ctt | tca | ctg | | 3024 |
| Asp | Ser | Gln | Ser | Pro | Ala | Glu | Ser | Ser | Pro | Gly | Pro | Ser | Leu | Ser | Leu | | |
| | | 995 | | | | 1000 | | | | | 1005 | | | | | | |
| tct | gca | ccc | gct | cct | ggg | gat | gtt | ccc | aaa | gac | aca | tgt | gtt | caa | tca | | 3072 |
| Ser | Ala | Pro | Ala | Pro | Gly | Asp | Val | Pro | Lys | Asp | Thr | Cys | Val | Gln | Ser | | |
| | 1010 | | | | 1015 | | | | 1020 | | | | | | | | |
| ccc | ata | agc | agt | ttc | cca | tgc | act | gat | cta | aaa | gtg | tca | gaa | aac | cat | | 3120 |
| Pro | Ile | Ser | Ser | Phe | Pro | Cys | Thr | Asp | Leu | Lys | Val | Ser | Glu | Asn | His | | |
| 1025 | | | | 1030 | | | | | 1035 | | | | | 1040 | | | |
| aaa | gga | tgt | gtt | ttg | cct | gtg | tct | cgt | cag | aac | aat | gag | aaa | atg | cca | | 3168 |
| Lys | Gly | Cys | Val | Leu | Pro | Val | Ser | Arg | Gln | Asn | Asn | Glu | Lys | Met | Pro | | |
| | | | 1045 | | | | | 1050 | | | | | 1055 | | | | |
| ctt | tta | gaa | ctt | gga | gga | gaa | aca | acc | cct | cct | ttg | tcc | aca | gag | cgt | | 3216 |
| Leu | Leu | Glu | Leu | Gly | Gly | Glu | Thr | Thr | Pro | Pro | Leu | Ser | Thr | Glu | Arg | | |
| | | 1060 | | | | 1065 | | | | | | 1070 | | | | | |
| agt | cca | gaa | gct | gtg | gga | agt | gag | tgt | cca | tcc | aga | gtc | ctc | gtc | cag | | 3264 |
| Ser | Pro | Glu | Ala | Val | Gly | Ser | Glu | Cys | Pro | Ser | Arg | Val | Leu | Val | Gln | | |
| | | 1075 | | | | 1080 | | | | | 1085 | | | | | | |
| gtc | agg | tcc | ttc | gtg | ctc | ccc | gtg | gag | agc | acc | cag | gat | gtg | agc | tcc | | 3312 |
| Val | Arg | Ser | Phe | Val | Leu | Pro | Val | Glu | Ser | Thr | Gln | Asp | Val | Ser | Ser | | |
| | 1090 | | | | 1095 | | | | 1100 | | | | | | | | |
| cag | gtc | atc | cca | gag | agc | tct | gaa | gtt | aga | gaa | gtg | cag | ttg | cca | act | | 3360 |
| Gln | Val | Ile | Pro | Glu | Ser | Ser | Glu | Val | Arg | Glu | Val | Gln | Leu | Pro | Thr | | |
| 1105 | | | | 1110 | | | | 1115 | | | | | 1120 | | | | |
| tgt | cac | agt | aat | gaa | cct | gaa | gtg | gtt | tcc | gtt | gca | agt | tgt | gct | ccc | | 3408 |
| Cys | His | Ser | Asn | Glu | Pro | Glu | Val | Val | Ser | Val | Ala | Ser | Cys | Ala | Pro | | |
| | | | 1125 | | | | 1130 | | | | | 1135 | | | | | |
| cca | caa | gag | gaa | gta | ctg | ggc | aat | gaa | cac | tct | cat | tgc | aca | gca | gag | | 3456 |

| | |
|---|------|
| Pro Gln Glu Glu Val Leu Gly Asn Glu His Ser His Cys Thr Ala Glu | |
| 1140 1145 1150 | |
| ctc gcg gca aaa tct ggc cca caa gtc ata ccg cca gca tca gag aaa | 3504 |
| Leu Ala Ala Lys Ser Gly Pro Gln Val Ile Pro Pro Ala Ser Glu Lys | |
| 1155 1160 1165 | |
| act ctg cct att cag gct caa agt cag ggc agc aga aca ccc ctg atg | 3552 |
| Thr Leu Pro Ile Gln Ala Gln Ser Gln Gly Ser Arg Thr pro Leu Met | |
| 1170 1175 1180 | |
| gct gaa tcc agt ccc acc aac tct ccc agc agc gga aat cac tta gcc | 3600 |
| Ala Glu Ser Ser Pro Thr Asn Ser Pro Ser Ser Gly Asn His Leu Ala | |
| 1185 1190 1195 1200 | |
| act cct caa agg cca gat cag act gtt aca aat ggc cag gat agc cct | 3648 |
| Thr Pro Gln Arg Pro Asp Gln Thr Val Thr Asn Gly Gln Asp Ser Pro | |
| 1205 1210 1215 | |
| gcc agc ctt ttg aac att tct gct ggt agt gat gat agt gta ttt gat | 3696 |
| Ala Ser Leu Leu Asn Ile Ser Ala Gly Ser Asp Asp Ser Val Phe Asp | |
| 1220 1225 1230 | |
| tct tct tct gat atg gaa aaa ttc act gaa att ata aaa cag atg gat | 3744 |
| Ser Ser Ser Asp Met Glu Lys Phe Thr Glu Ile Ile Lys Gln Met Asp | |
| 1235 1240 1245 | |
| agc gca gtt tgt atg ccc atg aaa aga aag aag gcc agg atg cca aac | 3792 |
| Ser Ala Val Cys Met Pro Met Lys Arg Lys Lys Ala Arg Met Pro Asn | |
| 1250 1255 1260 | |
| tct cct gct cct cac ttt gcc atg cct cct att cac gaa gac cat tta | 3840 |
| Ser Pro Ala Pro His Phe Ala Met Pro Pro Ile His Glu Asp His Leu | |
| 1265 1270 1275 1280 | |
| gaa aag gtg ttt gat ccc aaa gtg ttt acc ttt ggt ttg ggg aag aag | 3888 |
| Glu Lys Val Phe Asp Pro Lys Val Phe Thr Phe Gly Leu Gly Lys Lys | |
| 1285 1290 1295 | |
| aag gaa agt cag cca gaa atg tca ccg gct tta cat ttg atg cag aac | 3936 |
| Lys Glu Ser Gln Pro Glu Met Ser Pro Ala Leu His Leu Met Gln Asn | |
| 1300 1305 1310 | |
| ctt gac aca aaa tcc aaa ctg aga ccc aaa cgt gca tct gct gaa cag | 3984 |
| Leu Asp Thr Lys Ser Lys Leu Arg Pro Lys Arg Ala Ser Ala Glu Gln | |
| 1315 1320 1325 | |
| agc gtc ctc ttc aag tcc ctg cac acc aac act aat ggg aac agt gag | 4032 |
| Ser Val Leu Phe Lys Ser Leu His Thr Asn Thr Asn Gly Asn Ser Glu | |
| 1330 1335 1340 | |
| cct ctg gtg atg ccg gaa atc aat gac aaa gag aac agg gac gtc aca | 4080 |
| Pro Leu Val Met Pro Glu Ile Asn Asp Lys Glu Asn Arg Asp Val Thr | |
| 1345 1350 1355 1360 | |
| aat ggt ggc att aag aga tcg aga cta gaa aaa agt gca ctt ttc tca | 4128 |
| Asn Gly Gly Ile Lys Arg Ser Arg Leu Glu Lys Ser Ala Leu Phe Ser | |
| 1365 1370 1375 | |
| agc ttg tta tct tct tta cca caa gac aaa atc ttt tct cct tct gtg | 4176 |
| Ser Leu Leu Ser Ser Leu Pro Gln Asp Lys Ile Phe Ser Pro Ser Val | |
| 1380 1385 1390 | |
| aca tca gtc aac act atg acc acg gct ttc agt act tct cag aac ggt | 4224 |

| | |
|---|------|
| Thr Ser Val Asn Thr Met Thr Thr Ala Phe Ser Thr Ser Gln Asn Gly | |
| 1395 1400 1405 | |
| tcc cta tct cag tct tca gtg tca cag ccc acg act gag ggt gcc ccg | 4272 |
| Ser Leu Ser Gln Ser Ser Val Ser Gln Pro Thr Thr Glu Gly Ala Pro | |
| 1410 1415 1420 | |
| ccc tgt ggt ttg aac aaa gaa cag tca aat ctt ctg ccc gac aac tcc | 4320 |
| Pro Cys Gly Leu Asn Lys Glu Gln Ser Asn Leu Leu Pro Asp Asn Ser | |
| 1425 1430 1435 1440 | |
| tta aag gtc ttc aat ttc aac tcg tca agt aca tca cac tcc agt ttg | 4368 |
| Leu Lys Val Phe Asn Phe Asn Ser Ser Ser Thr Ser His Ser Ser Leu | |
| 1445 1450 1455 | |
| aaa agt cca agc cac atg gaa aaa tac ccg caa aaa gag aaa acc aaa | 4416 |
| Lys Ser Pro Ser His Met Glu Lys Tyr Pro Gln Lys Glu Lys Thr Lys | |
| 1460 1465 1470 | |
| gaa gat ctg gat tca cga agc aac cta cac ttg cca gaa act aaa ttt | 4464 |
| Glu Asp Leu Asp Ser Arg Ser Asn Leu His Leu Pro Glu Thr Lys Phe | |
| 1475 1480 1485 | |
| tct gaa ttg tca aaa ctg aag aat gat gat atg gaa aag gct aat cat | 4512 |
| Ser Glu Leu Ser Lys Leu Lys Asn Asp Asp Met Glu Lys Ala Asn His | |
| 1490 1495 1500 | |
| att gaa agt gtt att aaa tca aac ttg cca aac tgt gca aac agt gac | 4560 |
| Ile Glu Ser Val Ile Lys Ser Asn Leu Pro Asn Cys Ala Asn Ser Asp | |
| 1505 1510 1515 1520 | |
| acc gac ttc atg ggt ctt ttc aaa tca agc cgg tat gac cca agc att | 4608 |
| Thr Asp Phe Met Gly Leu Phe Lys Ser Ser Arg Tyr Asp Pro Ser Ile | |
| 1525 1530 1535 | |
| tct ttt tct gga atg tca tta tca gac aca atg aca ctt aga gga agt | 4656 |
| Ser Phe Ser Gly Met Ser Leu Ser Asp Thr Met Thr Leu Arg Gly Ser | |
| 1540 1545 1550 | |
| gtc caa aat aaa ctc aat ccc cga cct gga aag gta gtg ata tat agt | 4704 |
| Val Gln Asn Lys Leu Asn Pro Arg Pro Gly Lys Val Val Ile Tyr Ser | |
| 1555 1560 1565 | |
| gaa ccc gac gtc tct gag aag tgc att gaa gtt ttc agt gac att cag | 4752 |
| Glu Pro Asp Val Ser Glu Lys Cys Ile Glu Val Phe Ser Asp Ile Gln | |
| 1570 1575 1580 | |
| gat tgc agt tct tgg agc ctc tct cca gtg ata ctc ata aaa gtt gtt | 4800 |
| Asp Cys Ser Ser Trp Ser Leu Ser Pro Val Ile Leu Ile Lys Val Val | |
| 1585 1590 1595 1600 | |
| aga gga tgt tgg att ttg tat gag caa cca aat ttt gaa ggg cac tcc | 4848 |
| Arg Gly Cys Trp Ile Leu Tyr Glu Gln Pro Asn Phe Glu Gly His Ser | |
| 1605 1610 1615 | |
| atc ccc tta gaa gaa gga gaa ttg gaa ctc tct ggt ctc tgg ggt ata | 4896 |
| Ile Pro Leu Glu Glu Gly Glu Leu Glu Leu Ser Gly Leu Trp Gly Ile | |
| 1620 1625 1630 | |
| gaa gac att ttg gaa agg cac gaa gaa gca gag tct gat aag cca gtg | 4944 |
| Glu Asp Ile Leu Glu Arg His Glu Glu Ala Glu Ser Asp Lys Pro Val | |
| 1635 1640 1645 | |
| gtg att ggt tcc atc aga cat gtg gtt cag gat tac aga gtt agt cac | 4992 |

| | |
|---|------|
| Val Ile Gly Ser Ile Arg His Val Val Gln Asp Tyr Arg Val Ser His | |
| 1650 1655 1660 | |
| att gac tta ttt act gaa cca gaa ggg tta gga atc cta agt tcc tac | 5040 |
| Ile Asp Leu Phe Thr Glu Pro Glu Gly Leu Gly Ile Leu Ser Ser Tyr | |
| 1665 1670 1675 1680 | |
| ttt gat gat act gaa gaa atg cag gga ttt ggt gta atg cag aag act | 5088 |
| Phe Asp Asp Thr Glu Glu Met Gln Gly Phe Gly Val Met Gln Lys Thr | |
| 1685 1690 1695 | |
| tgt tcc atg aaa gta cat tgg ggc acg tgg ctg att tat gaa gaa cct | 5136 |
| Cys Ser Met Lys Val His Trp Gly Thr Trp Leu Ile Tyr Glu Glu Pro | |
| 1700 1705 1710 | |
| gga ttt cag ggt gtt cct ttc atc ctg gaa cct ggt gaa tac cct gac | 5184 |
| Gly Phe Gln Gly Val Pro Phe Ile Leu Glu Pro Gly Glu Tyr Pro Asp | |
| 1715 1720 1725 | |
| ttg tcc ttc tgg gat aca gaa gca gcg tac att gga tcc atg cgg cct | 5232 |
| Leu Ser Phe Trp Asp Thr Glu Ala Ala Tyr Ile Gly Ser Met Arg Pro | |
| 1730 1735 1740 | |
| ctg aaa atg ggt ggc cgt aaa gtt gaa ttc cct aca gat cca aag gta | 5280 |
| Leu Lys Met Gly Gly Arg Lys Val Glu Phe Pro Thr Asp Pro Lys Val | |
| 1745 1750 1755 1760 | |
| gtt gtt tat gaa aag cct ttc ttt gaa gga aaa tgt gtg gaa cta gaa | 5328 |
| Val Val Tyr Glu Lys Pro Phe Phe Glu Gly Lys Cys Val Glu Leu Glu | |
| 1765 1770 1775 | |
| aca gga atg tgt agt ttt gtc atg gag gga ggt gaa aca gaa gag gcg | 5376 |
| Thr Gly Met Cys Ser Phe Val Met Glu Gly Gly Glu Thr Glu Glu Ala | |
| 1780 1785 1790 | |
| act gga gac gat cat ttg ccg ttt acg tca gtg ggg tct atg aaa gtt | 5424 |
| Thr Gly Asp Asp His Leu Pro Phe Thr Ser Val Gly Ser Met Lys Val | |
| 1795 1800 1805 | |
| cta aga ggc att tgg gtt gca tat gag aag cct gga ttt acc ggt cat | 5472 |
| Leu Arg Gly Ile Trp Val Ala Tyr Glu Lys Pro Gly Phe Thr Gly His | |
| 1810 1815 1820 | |
| cag tat ttg cta gaa gaa gga gaa tac agg gac tgg aaa gcc tgg gga | 5520 |
| Gln Tyr Leu Leu Glu Glu Gly Glu Tyr Arg Asp Trp Lys Ala Trp Gly | |
| 1825 1830 1835 1840 | |
| ggt tac aat gga gag ctt cag tct tta cga cct ata tta ggt gat ttt | 5568 |
| Gly Tyr Asn Gly Glu Leu Gln Ser Leu Arg Pro Ile Leu Gly Asp Phe | |
| 1845 1850 1855 | |
| tca aat gct cac atg ata atg tac agt gaa aaa aac ttt gga tcc aaa | 5616 |
| Ser Asn Ala His Met Ile Met Tyr Ser Glu Lys Asn Phe Gly Ser Lys | |
| 1860 1865 1870 | |
| ggt tcc agt att gat gta ttg gga att gtt gct aat tta aag gag act | 5664 |
| Gly Ser Ser Ile Asp Val Leu Gly Ile Val Ala Asn Leu Lys Glu Thr | |
| 1875 1880 1885 | |
| gga tat gga gtg aag aca cag tct att aat gta ctg agt gga gta tgg | 5712 |
| Gly Tyr Gly Val Lys Thr Gln Ser Ile Asn Val Leu Ser Gly Val Trp | |
| 1890 1895 1900 | |
| gta gcc tat gaa aat cct gac ttc aca gga gaa cag tat ata ctg gat | 5760 |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Val | Ala | Tyr | Glu | Asn | Pro | Asp | Phe | Thr | Gly | Glu | Gln | Tyr | Ile | Leu | Asp | |
| 1905 | | | | | 1910 | | | | | 1915 | | | | | 1920 | |
| aaa | gga | ttt | tat | acc | agt | ttt | gag | gac | tgg | gga | ggc | aaa | aat | tat | aag | 5808 |
| Lys | Gly | Phe | Tyr | Thr | Ser | Phe | Glu | Asp | Trp | Gly | Gly | Lys | Asn | Tyr | Lys | |
| | | | 1925 | | | | | | 1930 | | | | | 1935 | | |
| atc | tct | tct | gtt | caa | cct | ata | tgt | ttg | gat | tct | ttc | act | ggc | cca | agg | 5856 |
| Ile | Ser | Ser | Val | Gln | Pro | Ile | Cys | Leu | Asp | Ser | Phe | Thr | Gly | Pro | Arg | |
| | | | 1940 | | | | | 1945 | | | | | 1950 | | | |
| aga | cga | aat | cag | att | cac | ttg | ttt | tca | gaa | cca | cag | ttt | caa | ggc | cac | 5904 |
| Arg | Arg | Asn | Gln | Ile | His | Leu | Phe | Ser | Glu | Pro | Gln | Phe | Gln | Gly | His | |
| | | 1955 | | | | | 1960 | | | | | 1965 | | | | |
| agt | caa | agt | ttt | gaa | gaa | aca | aca | agt | caa | att | gat | gat | tca | ttt | tct | 5952 |
| Ser | Gln | Ser | Phe | Glu | Glu | Thr | Thr | Ser | Gln | Ile | Asp | Asp | Ser | Phe | Ser | |
| | 1970 | | | | | 1975 | | | | 1980 | | | | | | |
| acc | aag | tct | tgc | aga | gtt | tca | gga | ggc | agc | tgg | gtt | gta | tat | gat | gga | 6000 |
| Thr | Lys | Ser | Cys | Arg | Val | Ser | Gly | Gly | Ser | Trp | Val | Val | Tyr | Asp | Gly | |
| 1985 | | | | | 1990 | | | | 1995 | | | | | 2000 | | |
| gaa | aat | ttc | act | ggc | aat | caa | tac | gtg | ttg | gaa | gaa | ggc | cat | tat | cct | 6048 |
| Glu | Asn | Phe | Thr | Gly | Asn | Gln | Tyr | Val | Leu | Glu | Glu | Gly | His | Tyr | Pro | |
| | | | 2005 | | | | | 2010 | | | | | 2015 | | | |
| tgt | ctg | tct | gca | atg | gga | tgc | ccg | cct | gga | gca | act | ttc | aag | tct | ctt | 6096 |
| Cys | Leu | Ser | Ala | Met | Gly | Cys | Pro | Pro | Gly | Ala | Thr | Phe | Lys | Ser | Leu | |
| | | | 2020 | | | | 2025 | | | | | 2030 | | | | |
| cgt | ttt | ata | gat | gtt | gaa | ttt | tct | gaa | cca | aca | att | att | ctc | ttt | gaa | 6144 |
| Arg | Phe | Ile | Asp | Val | Glu | Phe | Ser | Glu | Pro | Thr | Ile | Ile | Leu | Phe | Glu | |
| | 2035 | | | | | 2040 | | | | | 2045 | | | | | |
| aga | gaa | gac | ttc | aaa | gga | aaa | aag | att | gaa | ctt | aat | gca | gaa | act | gtc | 6192 |
| Arg | Glu | Asp | Phe | Lys | Gly | Lys | Lys | Ile | Glu | Leu | Asn | Ala | Glu | Thr | Val | |
| | 2050 | | | | 2055 | | | | 2060 | | | | | | | |
| aat | ctc | cga | tcc | ctg | gga | ttc | aac | aca | caa | ata | cgc | tct | gtt | cag | gtt | 6240 |
| Asn | Leu | Arg | Ser | Leu | Gly | Phe | Asn | Thr | Gln | Ile | Arg | Ser | Val | Gln | Val | |
| 2065 | | | | 2070 | | | | 2075 | | | 2080 | | | | | |
| att | ggc | ggc | ata | tgg | gtt | act | tat | gaa | tat | ggc | agt | tac | aga | ggg | cga | 6288 |
| Ile | Gly | Gly | Ile | Trp | Val | Thr | Tyr | Glu | Tyr | Gly | Ser | Tyr | Arg | Gly | Arg | |
| | | | 2085 | | | | 2090 | | | | | 2095 | | | | |
| cag | ttc | cta | ttg | tca | cct | gca | gaa | gta | cct | aat | tgg | tat | gaa | ttc | agt | 6336 |
| Gln | Phe | Leu | Leu | Ser | Pro | Ala | Glu | Val | Pro | Asn | Trp | Tyr | Glu | Phe | Ser | |
| | | | 2100 | | | | 2105 | | | | | 2110 | | | | |
| ggc | tgt | cgc | caa | ata | ggc | tct | cta | cga | cct | ttt | gtt | cag | aag | cga | att | 6384 |
| Gly | Cys | Arg | Gln | Ile | Gly | Ser | Leu | Arg | Pro | Phe | Val | Gln | Lys | Arg | Ile | |
| | 2115 | | | | 2120 | | | | | | 2125 | | | | | |
| tat | ttc | aga | ctt | cga | aac | aaa | gca | aca | ggg | tta | ttc | atg | tca | acc | aat | 6432 |
| Tyr | Phe | Arg | Leu | Arg | Asn | Lys | Ala | Thr | Gly | Leu | Phe | Met | Ser | Thr | Asn | |
| | 2130 | | | | 2135 | | | | 2140 | | | | | | | |
| gga | aac | tta | gag | gat | ctg | aag | ctt | ctg | agg | ata | cag | gtc | atg | gag | gat | 6480 |
| Gly | Asn | Leu | Glu | Asp | Leu | Lys | Leu | Leu | Arg | Ile | Gln | Val | Met | Glu | Asp | |
| 2145 | | | | 2150 | | | | 2155 | | | 2160 | | | | | |
| gtc | ggg | gcc | gat | gat | cag | att | tgg | atc | tat | caa | gaa | gga | tgt | atc | aaa | 6528 |

Val Gly Ala Asp Asp Gln Ile Trp Ile Tyr Gln Glu Gly Cys Ile Lys
 2165 2170 2175

tgc agg ata gca gaa gac tgc tgc ctg acg att gtg ggc agc ctg gta 6576
 Cys Arg Ile Ala Glu Asp Cys Cys Leu Thr Ile Val Gly Ser Leu Val
 2180 2185 2190

aca tct ggc tcc aag cta ggc ctg gcc ctg gac cag aat gct gac agc 6624
 Thr Ser Gly Ser Lys Leu Gly Leu Ala Leu Asp Gln Asn Ala Asp Ser
 2195 2200 2205

cag ttc tgg agc ttg aag tcc gat ggc agg att tac agc aag ttg aag 6672
 Gln Phe Trp Ser Leu Lys Ser Asp Gly Arg Ile Tyr Ser Lys Leu Lys
 2210 2215 2220

cca aat tta gtt tta gac att aaa ggg ggc aca cag tat gat caa aat 6720
 Pro Asn Leu Val Leu Asp Ile Lys Gly Gly Thr Gln Tyr Asp Gln Asn
 2225 2230 2235 2240

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 His Ile Ile Leu Asn Thr Val Ser Lys Glu Lys Phe Thr Gln Val Trp
 2245 2250 2255

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 Glu Ala Met Val Leu Tyr Thr *
 2260

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 cggg atg ggc cgg cgc cgg gcg cca gag ctg tac cgg gct ccg ttc ccg 229
 Met Gly Arg Arg Arg Ala Pro Glu Leu Tyr Arg Ala Pro Phe Pro
 1 5 10 15

ttg tac gcg ctt cag gtc gac ccc agc act ggg ctg ctc atc gct gcg 277
 Leu Tyr Ala Leu Gln Val Asp Pro Ser Thr Gly Leu Leu Ile Ala Ala
 20 25 30

ggc gga gga ggc gcc gcc aag aca ggc ata aag aat ggc gtg cac ttt 325
 Gly Gly Gly Gly Ala Ala Lys Thr Gly Ile Lys Asn Gly Val His Phe
 35 40 45

ctg cag cta gag ctg att aat ggg cgc ttg agt gcc tcc ttg ctg cac 373
 Leu Gln Leu Glu Leu Ile Asn Gly Arg Leu Ser Ala Ser Leu Leu His
 50 55 60

tcc cat gac aca gag aca cgg gcc acc atg aac ttg gca ctg gct ggt 421

| | | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Ser | His | Asp | Thr | Glu | Thr | Arg | Ala | Thr | Met | Asn | Leu | Ala | Leu | Ala | Gly | | |
| 65 | | | | | | 70 | | | | | 75 | | | | | | |
| gac atc ctt gct gca ggg cag gat gcc cac tgt cag ctc ctg cgc ttc 469 | | | | | | | | | | | | | | | | | |
| Asp | Ile | Leu | Ala | Ala | Gly | Gln | Asp | Ala | His | Cys | Gln | Leu | Leu | Arg | Phe | | |
| 80 | | | | | 85 | | | | | 90 | | | | | 95 | | |
| cag gca cat caa cag cag ggc aac aag gca gag aag gcc ggt tcc aag 517 | | | | | | | | | | | | | | | | | |
| Gln | Ala | His | Gln | Gln | Gln | Gly | Asn | Lys | Ala | Glu | Lys | Ala | Gly | Ser | Lys | | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| gag cag ggg cct cga caa agg aag gga gca gcc cca gca gag aag aaa 565 | | | | | | | | | | | | | | | | | |
| Glu | Gln | Gly | Pro | Arg | Gln | Arg | Lys | Gly | Ala | Ala | Pro | Ala | Glu | Lys | Lys | | |
| | | | 115 | | | | | 120 | | | | | 125 | | | | |
| tgt gga gcg gaa acc cag cac gag ggg cta gaa ctc agg gta gag aat 613 | | | | | | | | | | | | | | | | | |
| Cys | Gly | Ala | Glu | Thr | Gln | His | Glu | Gly | Leu | Glu | Leu | Arg | Val | Glu | Asn | | |
| | | 130 | | | | | 135 | | | | | 140 | | | | | |
| ttg cag gcg gtg cag aca gac ttt agc tcc gat cca ctg cag aaa gtt 661 | | | | | | | | | | | | | | | | | |
| Leu | Gln | Ala | Val | Gln | Thr | Asp | Phe | Ser | Ser | Asp | Pro | Leu | Gln | Lys | Val | | |
| | 145 | | | | | 150 | | | | | 155 | | | | | | |
| gtg tgc ttc aac cac gat aat acc ctg ctt gcc act gga gga aca gat 709 | | | | | | | | | | | | | | | | | |
| Val | Cys | Phe | Asn | His | Asp | Asn | Thr | Leu | Leu | Ala | Thr | Gly | Gly | Thr | Asp | | |
| 160 | | | | | 165 | | | | | 170 | | | | | 175 | | |
| ggc tac gtc cgt gtc tgg aag gtg ccc agc ctg gag aag gtt ctg gag 757 | | | | | | | | | | | | | | | | | |
| Gly | Tyr | Val | Arg | Val | Trp | Lys | Val | Pro | Ser | Leu | Glu | Lys | Val | Leu | Glu | | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| ttc aaa gcc cac gaa ggg gag att gaa gac ctg gct tta ggg cct gat 805 | | | | | | | | | | | | | | | | | |
| Phe | Lys | Ala | His | Glu | Gly | Glu | Ile | Glu | Asp | Leu | Ala | Leu | Gly | Pro | Asp | | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| ggc aag ttg gta acc gtg ggc cgg gac ctt aag gcc tct gtg tgg cag 853 | | | | | | | | | | | | | | | | | |
| Gly | Lys | Leu | Val | Thr | Val | Gly | Arg | Asp | Leu | Lys | Ala | Ser | Val | Trp | Gln | | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| aag gat cag ctg gtg aca cag ctg cac tgg caa gaa aat gga ccc acc 901 | | | | | | | | | | | | | | | | | |
| Lys | Asp | Gln | Leu | Val | Thr | Gln | Leu | His | Trp | Gln | Glu | Asn | Gly | Pro | Thr | | |
| | 225 | | | | | 230 | | | | | 235 | | | | | | |
| ttt tcc agc aca cct tac cgc tac cag gcc tgc agg ttt ggg cag gtt 949 | | | | | | | | | | | | | | | | | |
| Phe | Ser | Ser | Thr | Pro | Tyr | Arg | Tyr | Gln | Ala | Cys | Arg | Phe | Gly | Gln | Val | | |
| 240 | | | | | 245 | | | | | 250 | | | | | 255 | | |
| cca gac cag cct gct ggc ctg cga ctc ttc aca gtg caa att ccc cac 997 | | | | | | | | | | | | | | | | | |
| Pro | Asp | Gln | Pro | Ala | Gly | Leu | Arg | Leu | Phe | Thr | Val | Gln | Ile | Pro | His | | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | |
| aag cgc ctg cgc cag ccc cct ccc tgc tac ctc aca gcc tgg gat ggc 1045 | | | | | | | | | | | | | | | | | |
| Lys | Arg | Leu | Arg | Gln | Pro | Pro | Pro | Cys | Tyr | Leu | Thr | Ala | Trp | Asp | Gly | | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| tcc aac ttc ttg ccc ctt cgg acc aag tcc tgt ggc cat gaa gtc gtc 1093 | | | | | | | | | | | | | | | | | |
| Ser | Asn | Phe | Leu | Pro | Leu | Arg | Thr | Lys | Ser | Cys | Gly | His | Glu | Val | Val | | |
| | | 290 | | | | | 295 | | | | | 300 | | | | | |
| tcc tgc ctc gat gtc agt gaa tcc ggc acc ttc cta ggc ctg ggc aca 1141 | | | | | | | | | | | | | | | | | |
| Ser | Cys | Leu | Asp | Val | Ser | Glu | Ser | Gly | Thr | Phe | Leu | Gly | Leu | Gly | Thr | | |
| | 305 | | | | | 310 | | | | | 315 | | | | | | |
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1891

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 Pro Cys Cys His Pro Thr Cys Tyr Gln Thr Ile Cys Phe Arg Thr Thr
 120 125 130

tgc tgc cag cct acc tgc tgc cag ccc acc tgc tgc agg aac acc tct 1506
 Cys Cys Gln Pro Thr Cys Cys Gln Pro Thr Cys Cys Arg Asn Thr Ser
 135 140 145

tgc cag ccc acc tgc tgt ggg tcc agc tgc tgc cag cct tgc tgc cac 1554
 Cys Gln Pro Thr Cys Cys Gly Ser Ser Cys Cys Gln Pro Cys Cys His
 150 155 160

cca aca tgc tgt caa acc att tgt aga tcc acc tgc tgc caa cca tcc 1602
 Pro Thr Cys Cys Gln Thr Ile Cys Arg Ser Thr Cys Cys Gln Pro Ser
 165 170 175 180

tgt gtg acc aga tgc tgc agc aca ccc tgt tgc cag cca acc tgt ggt 1650
 Cys Val Thr Arg Cys Cys Ser Thr Pro Cys Cys Gln Pro Thr Cys Gly
 185 190 195

ggg tcc agc tgc tgt agc caa acc tgc aat gag tcc agc tat tgt ctg 1698
 Gly Ser Ser Cys Cys Ser Gln Thr Cys Asn Glu Ser Ser Tyr Cys Leu
 200 205 210

cct tgc tgc cgt ccc acc tgc tgc cag acc acc tgc tac agg acc acc 1746
 Pro Cys Cys Arg Pro Thr Cys Cys Gln Thr Thr Cys Tyr Arg Thr Thr
 215 220 225

tgt tgc cgc ccc agc tgt tgc tgc agt cct tgc tgt gtc tcc agc tgc 1794
 Cys Cys Arg Pro Ser Cys Cys Cys Ser Pro Cys Cys Val Ser Ser Cys
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tgc cag cct tcc tgc tgc taa tc caattgctgc agaccaccca cccaccagag 1847
 Cys Gln Pro Ser Cys Cys *
 245 250

acat 1851

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 agcctcccaa aaaggtggga ttacagggtt tagccccgc gcccggcctg caaaaccctt 180
 ttttactttt ggggccccaa aagatcccc atttccccgt ccttttccgg tagactattc 240
 gctactgaaa cgattttttt ttttttttga gacgaggtgg aggggcgggg gttctcgcta 300
 tcttgctcaa gctgatctcg aactcctggg ttcatcaat actcagacaa tcttggcagg 360
 cgcaggagga ccaaattcta gtgaatgaga tcgagtctct cggctctttc ccttccatgt 420

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tttcttttttg attggccctc gacgatactc agtgacgcct cccgcaccgc ctcacccgag      480
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ggattgacgg gcaggtttagc caatggctctc gtaatatagg tggagcgagc cctcgaggat      600
gtccacgacc cggcctctcg ctgaatatctc atgagggagg cgggtcgacc ccgctgcaca      660
gtccggccgg cgccatgaag tgagaagggg gctgggggtc gcgctcgcta gcgggcgcgg      720
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ctctgggctc gacgaccggg cactgtggag gcgggagagg ggctgagggg acgggaactg      960
accagcagc ccctgccgcc aggetcaacg tggacgggct cctgggtctac ttcccgtacg     1020
actacatcta ccccgagcag ttctcctac  atg cgg gag ctc aaa cgc acg ctg      1073
                               Met Arg Glu Leu Lys Arg Thr Leu
                               1                               5

gac gcc aag ggt cat gga gtc ctg gag atg ccc tca ggc acc ggg aag      1121
Asp Ala Lys Gly His Gly Val Leu Glu Met Pro Ser Gly Thr Gly Lys
      10                               15                               20

aca gta tcc ctg ttg gcc ctg atc atg gca tac cag aga gca tat ccg      1169
Thr Val Ser Leu Leu Ala Leu Ile Met Ala Tyr Gln Arg Ala Tyr Pro
      25                               30                               35                               40

ctg gag gtg acc aaa ctc atc tac tgc tca aga act gtg cca gag att      1217
Leu Glu Val Thr Lys Leu Ile Tyr Cys Ser Arg Thr Val Pro Glu Ile
                               45                               50                               55

gag aag gtg att gaa gag ctt cga aag ttg ctc aac ttc tat gag aag      1265
Glu Lys Val Ile Glu Glu Leu Arg Lys Leu Leu Asn Phe Tyr Glu Lys
                               60                               65                               70

cag gag ggc gag aag ctg ccg ttt ctg gga ctg gct ctg agc tcc cgc      1313
Gln Glu Gly Glu Lys Leu Pro Phe Leu Gly Leu Ala Leu Ser Ser Arg
      75                               80                               85

aaa aac ttg tgt att cac cct gag gtg aca ccc ctg cgc ttt ggg aag      1361
Lys Asn Leu Cys Ile His Pro Glu Val Thr Pro Leu Arg Phe Gly Lys
      90                               95                               100

gac gtc gat ggg aaa tgc cac agc ctc aca gcc tcc tat gtg cgg gcg      1409
Asp Val Asp Gly Lys Cys His Ser Leu Thr Ala Ser Tyr Val Arg Ala
      105                               110                               115                               120

cag tac cag cat gac acc agc ctg ccc cac tgc cga ttc tat gag gaa      1457
Gln Tyr Gln His Asp Thr Ser Leu Pro His Cys Arg Phe Tyr Glu Glu
                               125                               130                               135

ttt gat gcc cat ggg cgt gag gtg ccc ctc ccc gct ggc atc tac aac      1505
Phe Asp Ala His Gly Arg Glu Val Pro Leu Pro Ala Gly Ile Tyr Asn
      140                               145                               150

ctg gat gac ctg aag gcc ctg ggg cgg cgc cag ggc tgg tgc cca tac      1553
Leu Asp Asp Leu Lys Ala Leu Gly Arg Arg Gln Gly Trp Cys Pro Tyr
      155                               160                               165

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| | |
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| ttc ctt gct cga tac tca atc ctg cat gcc aat gtg gtg gtt tat agc Phe Leu Ala Arg Tyr Ser Ile Leu His Ala Asn Val Val Val Tyr Ser 170 175 180 | 1601 |
| tac cac tac ctc ctg gac ccc aag att gca gac ctg gtg tcc aag gaa Tyr His Tyr Leu Leu Asp Pro Lys Ile Ala Asp Leu Val Ser Lys Glu 185 190 195 200 | 1649 |
| ctg gcc cgc aag gcc gtc gtg gtc ttc gac gag gcc cac aac att gac Leu Ala Arg Lys Ala Val Val Val Phe Asp Glu Ala His Asn Ile Asp 205 210 215 | 1697 |
| aac gtc tgc atc gac tcc atg agc gtc aac ctc acc cgc cgg acc ctt Asn Val Cys Ile Asp Ser Met Ser Val Asn Leu Thr Arg Arg Thr Leu 220 225 230 | 1745 |
| gac cgg tgc cag ggc aac ctg gag acc ctg cag aag acg gtg ctc agg Asp Arg Cys Gln Gly Asn Leu Glu Thr Leu Gln Lys Thr Val Leu Arg 235 240 245 | 1793 |
| atc aaa gag aca gac gag cag cgc ctg cgg gac gag tac cgg cgt ctg Ile Lys Glu Thr Asp Glu Gln Arg Leu Arg Asp Glu Tyr Arg Arg Leu 250 255 260 | 1841 |
| gtg gag ggg ctg cgg gag gcc agc gcc gcc cgg gag acg gac gcc cac Val Glu Gly Leu Arg Glu Ala Ser Ala Ala Arg Glu Thr Asp Ala His 265 270 275 280 | 1889 |
| ctg gcc aac ccc gtg ctg ccc gac gaa gtg ctg cag gag gca gtg cct Leu Ala Asn Pro Val Leu Pro Asp Glu Val Leu Gln Glu Ala Val Pro 285 290 295 | 1937 |
| ggc tcc atc cgc acg gcc gag cat ttc ctg ggc ttc ctg agg cgg ctg Gly Ser Ile Arg Thr Ala Glu His Phe Leu Gly Phe Leu Arg Arg Leu 300 305 310 | 1985 |
| ctg gag tac gtg aag tgg cgg ctg cgt gtg cag cat gtg gtg cag gag Leu Glu Tyr Val Lys Trp Arg Leu Arg Val Gln His Val Val Gln Glu 315 320 325 | 2033 |
| agc ccg ccc gcc ttc ctg agc ggc ctg gcc cag cgc gtg tgc atc cag Ser Pro Pro Ala Phe Leu Ser Gly Leu Ala Gln Arg Val Cys Ile Gln 330 335 340 | 2081 |
| cgc aag ccc ctc aga ttc tgt gct gaa cgc ctc cgg tcc ctg ctg cat Arg Lys Pro Leu Arg Phe Cys Ala Glu Arg Leu Arg Ser Leu Leu His 345 350 355 360 | 2129 |
| act ctg gag atc acc gac ctt gct gac ttc tcc ccg ctc acc ctc ctt Thr Leu Glu Ile Thr Asp Leu Ala Asp Phe Ser Pro Leu Thr Leu Leu 365 370 375 | 2177 |
| gct aac ttt gcc acc ctt gtc agc acc tac gcc aaa ggc ttc acc atc Ala Asn Phe Ala Thr Leu Val Ser Thr Tyr Ala Lys Gly Phe Thr Ile 380 385 390 | 2225 |
| atc atc gag ccc ttt gac gac aga acc ccg acc att gcc aac ccc atc Ile Ile Glu Pro Phe Asp Asp Arg Thr Pro Thr Ile Ala Asn Pro Ile 395 400 405 | 2273 |
| ctg cac ttc agc tgc atg gac gcc tcg ctg gcc atc aaa ccc gta ttt Leu His Phe Ser Cys Met Asp Ala Ser Leu Ala Ile Lys Pro Val Phe 410 415 420 | 2321 |

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|---|------|
| gag cgt ttc cag tct gtc atc atc aca tct ggg aca ctg tcc ccg ctg | 2369 |
| Glu Arg Phe Gln Ser Val Ile Ile Thr Ser Gly Thr Leu Ser Pro Leu | |
| 425 430 435 440 | |
| gac atc tac ccc aag atc ctg gac ttc cac ccc gtc acc atg gca acc | 2417 |
| Asp Ile Tyr Pro Lys Ile Leu Asp Phe His Pro Val Thr Met Ala Thr | |
| 445 450 455 | |
| ttc acc atg acg ctg gca cgg gtc tgc ctc tgc cct atg atc atc ggc | 2465 |
| Phe Thr Met Thr Leu Ala Arg Val Cys Leu Cys Pro Met Ile Ile Gly | |
| 460 465 470 | |
| cgt ggc aat gac cag gtg gcc atc agc tcc aaa ttt gag acc cgg gag | 2513 |
| Arg Gly Asn Asp Gln Val Ala Ile Ser Ser Lys Phe Glu Thr Arg Glu | |
| 475 480 485 | |
| gat att gct gtg atc cgg aac tat ggg aac ctc ctg ctg gag atg tcc | 2561 |
| Asp Ile Ala Val Ile Arg Asn Tyr Gly Asn Leu Leu Leu Glu Met Ser | |
| 490 495 500 | |
| gct gtg gtc cct gat ggc atc gtg gcc ttc ttc acc agc tac cag tac | 2609 |
| Ala Val Val Pro Asp Gly Ile Val Ala Phe Phe Thr Ser Tyr Gln Tyr | |
| 505 510 515 520 | |
| atg gag agc acc gtg gcc tcc tgg tat gag cag ggg atc ctt gag aac | 2657 |
| Met Glu Ser Thr Val Ala Ser Trp Tyr Glu Gln Gly Ile Leu Glu Asn | |
| 525 530 535 | |
| atc cag agg aac aag ctg ctc ttt att gag acc cag gat ggt gcc gaa | 2705 |
| Ile Gln Arg Asn Lys Leu Leu Phe Ile Glu Thr Gln Asp Gly Ala Glu | |
| 540 545 550 | |
| acc agt gtc gcc ctg gag aag tac cag gag gcc tgc gag aat ggc cgc | 2753 |
| Thr Ser Val Ala Leu Glu Lys Tyr Gln Glu Ala Cys Glu Asn Gly Arg | |
| 555 560 565 | |
| ggg gcc atc ctg ctg tca gtg gcc cgg ggc aaa gtg tcc gag gga atc | 2801 |
| Gly Ala Ile Leu Leu Ser Val Ala Arg Gly Lys Val Ser Glu Gly Ile | |
| 570 575 580 | |
| gac ttt gtg cac cac tac ggg cgg gcc gtc atc atg ttt ggc gtc ccc | 2849 |
| Asp Phe Val His His Tyr Gly Arg Ala Val Ile Met Phe Gly Val Pro | |
| 585 590 595 600 | |
| tac gtc tac aca cag agc cgc att ctc aag gcg cgg ctg gaa tac ctg | 2897 |
| Tyr Val Tyr Thr Gln Ser Arg Ile Leu Lys Ala Arg Leu Glu Tyr Leu | |
| 605 610 615 | |
| cgg gac cag ttc cag att cgt gag aat gac ttt ctt acc ttc gat gcc | 2945 |
| Arg Asp Gln Phe Gln Ile Arg Glu Asn Asp Phe Leu Thr Phe Asp Ala | |
| 620 625 630 | |
| atg cgc cac gcg gcc cag tgt gtg ggt cgg gcc atc agg ggc aag acg | 2993 |
| Met Arg His Ala Ala Gln Cys Val Gly Arg Ala Ile Arg Gly Lys Thr | |
| 635 640 645 | |
| gac tac ggc ctc atg gtc ttt gcc gac aag cgg ttt gcc cgt ggg gac | 3041 |
| Asp Tyr Gly Leu Met Val Phe Ala Asp Lys Arg Phe Ala Arg Gly Asp | |
| 650 655 660 | |
| aag cgg ggg aag ctg ccc cgc tgg atc cag gag cac ctc aca gat gcc | 3089 |
| Lys Arg Gly Lys Leu Pro Arg Trp Ile Gln Glu His Leu Thr Asp Ala | |
| 665 670 675 680 | |

aac ctc aac ctg acc gtg gac gag ggt gtc cag gtg gcc aag tac ttc 3137
 Asn Leu Asn Leu Thr Val Asp Glu Gly Val Gln Val Ala Lys Tyr Phe
 685 690 695
 ctg cgg cag atg gca cag ccc ttc cac cgg gag gat cag ctg ggc ctg 3185
 Leu Arg Gln Met Ala Gln Pro Phe His Arg Glu Asp Gln Leu Gly Leu
 700 705 710
 tcc ctg ctc agc ctg gag cag cta gaa tca gag gag acg ctg aag agg 3233
 Ser Leu Leu Ser Leu Glu Gln Leu Glu Ser Glu Glu Thr Leu Lys Arg
 715 720 725
 ata gag cag att gct cag cag ctc tga gtggg gcgggtgggg ccataaacgg 3285
 Ile Glu Gln Ile Ala Gln Gln Leu *
 730 735
 ttctgtgtga aaaaaaaaaa a 3306

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 gaggaggaga ggctcggagcc gtctccagga gcccttagag accgagtcgc ggccggcgacg 180
 gcggggcagc gcaccggcag gcggattcat tccacttaaa acctgaaaac attggaccac 240
 acaaagtctt actgatttca ggtaaaaaca ataattgaag atg tcc agc aaa aca 295
 Met Ser Ser Lys Thr
 1 5
 gca agc acc aac aat ata gcc cag gca agg aga act gtg cag cag tta 343
 Ala Ser Thr Asn Asn Ile Ala Gln Ala Arg Arg Thr Val Gln Gln Leu
 10 15 20
 aga tta gaa gcc tcc att gaa aga ata aag gtt tcg aag gca tca gcg 391
 Arg Leu Glu Ala Ser Ile Glu Arg Ile Lys Val Ser Lys Ala Ser Ala
 25 30 35
 gac ctc atg tcc tac tgt gag gaa cat gcc agg agt gac cct ttg ctg 439
 Asp Leu Met Ser Tyr Cys Glu Glu His Ala Arg Ser Asp Pro Leu Leu
 40 45 50
 ata gga ata cca act tca gaa aac cct ttc aag gat aaa aaa act tgc 487
 Ile Gly Ile Pro Thr Ser Glu Asn Pro Phe Lys Asp Lys Lys Thr Cys
 55 60 65
 atc atc tta tag tgg aatagagaaa cagctcctcg cctctttcca acaacgcaaa 542
 Ile Ile Leu *
 70

ttatgagcag ctccttgaag agatttacct tcagcttatt tggtaccac tgctaataac 602
 taaaatgttc tcagcttgga ataattggact ctgaagtctc tattttccaa gttgtccttt 662
 ctccttaaaa taccctttt 681

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 <222> (47) .. (409)

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 Met Gly Arg
 1

aga aag tca aaa cga aag ccg cct ccc aag aag aag atg aca ggc acc 103
 Arg Lys Ser Lys Arg Lys Pro Pro Pro Lys Lys Lys Met Thr Gly Thr
 5 10 15

ctc gag acc cag ttc acc tgc ccc ttc tgc aac cac gag aaa tcc tgt 151
 Leu Glu Thr Gln Phe Thr Cys Pro Phe Cys Asn His Glu Lys Ser Cys
 20 25 30 35

gat gtg aaa atg gac cgt gcc cgc aac acc gga gtc atc tct tgt acc 199
 Asp Val Lys Met Asp Arg Ala Arg Asn Thr Gly Val Ile Ser Cys Thr
 40 45 50

gtg tgc cta gag gaa ttc cag acg ccc ata acg tgt atc ctt gga aac 247
 Val Cys Leu Glu Glu Phe Gln Thr Pro Ile Thr Cys Ile Leu Gly Asn
 55 60 65

ctg ggc ttt ttc cag agg gtg ggg agg ggg ctg gag tcc gga ccc tgc 295
 Leu Gly Phe Phe Gln Arg Val Gly Arg Gly Leu Glu Ser Gly Pro Cys
 70 75 80

tca tct ggc cca ctg tgt gcc ctg gtg cag ggc caa agc cgt cca gag 343
 Ser Ser Gly Pro Leu Cys Ala Leu Val Gln Gly Gln Ser Arg Pro Glu
 85 90 95

gaa cag gtg cca cct agt gat ttc tgt ggg gtg aga aga tgc agg gca 391
 Glu Gln Val Pro Pro Ser Asp Phe Cys Gly Val Arg Arg Cys Arg Ala
 100 105 110 115

ggg ttc caa tgc caa tga tcgccc ttgacctatg tgggccagat ctgtcagaac 445
 Gly Phe Gln Cys Gln *
 120

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 gagga 510

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<213> Homo sapiens

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cagccacgaa gatcctacca aa atg aag cgc ttc ctc ttc ctc cta ctc acc 112
Met Lys Arg Phe Leu Phe Leu Leu Leu Thr
1 5 10
atc agc ctc ctg gtt atg gta cag ata caa act gga ctc tca gga caa 160
Ile Ser Leu Leu Val Met Val Gln Ile Gln Thr Gly Leu Ser Gly Gln
15 20 25
aac gac acc agc caa acc agc agc ccc tca gca tcc agc agc atg agc 208
Asn Asp Thr Ser Gln Thr Ser Ser Pro Ser Ala Ser Ser Ser Met Ser
30 35 40
gga ggc att ttc ctt ttc ttc gtg gcc aat gcc ata atc cac ctc ttc 256
Gly Gly Ile Phe Leu Phe Phe Val Ala Asn Ala Ile Ile His Leu Phe
45 50 55
tgc ttc agt tga ggg gacacgtctc agccttagcc ctgtgcccc tgaaacagct 311
Cys Phe Ser *
60
gccaccatca ctcgcaagag aatccccctcc atctttggga ggggttgatg ccagacatca 371
ccaggttgta gaagttgaca ggcagtgcca tgggggcaac agccaaaata ggggggtaat 431
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gaagatggcg ctggccgg atg gaa atc cta atg aca gtc tcc aaa ttc gcc 171
Met Glu Ile Leu Met Thr Val Ser Lys Phe Ala
1 5 10
tcc atc tgt acc atg ggc gcc aat gct tcg gca tta gag aaa gag att 219
Ser Ile Cys Thr Met Gly Ala Asn Ala Ser Ala Leu Glu Lys Glu Ile
15 20 25
ggg cca gaa cag ttt ccg gtc aat gag cac tat ttt gga tta gtc aat 267
Gly Pro Glu Gln Phe Pro Val Asn Glu His Tyr Phe Gly Leu Val Asn
30 35 40

| | |
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| ttt ggg aat acc tgc tac tgc aat tca gtt ctt caa gca ctt tat ttt | 315 |
| Phe Gly Asn Thr Cys Tyr Cys Asn Ser Val Leu Gln Ala Leu Tyr Phe | |
| 45 50 55 | |
| tgt cgt cca ttt cgg gaa aaa gtt ctt gcg tat aag agt caa cct agg | 363 |
| Cys Arg Pro Phe Arg Glu Lys Val Leu Ala Tyr Lys Ser Gln Pro Arg | |
| 60 65 70 75 | |
| aaa aag gag agc ctt ctt aca tgc tta gca gat ctc ttc cat agc ata | 411 |
| Lys Lys Glu Ser Leu Leu Thr Cys Leu Ala Asp Leu Phe His Ser Ile | |
| 80 85 90 | |
| gcc act cag aag aaa aag gtt gga gta ata ccc cct aag aag ttc atc | 459 |
| Ala Thr Gln Lys Lys Lys Val Gly Val Ile Pro Pro Lys Lys Phe Ile | |
| 95 100 105 | |
| aca aga tta cgg aaa gaa aat gag ctt ttt gac aac tac atg caa caa | 507 |
| Thr Arg Leu Arg Lys Glu Asn Glu Leu Phe Asp Asn Tyr Met Gln Gln | |
| 110 115 120 | |
| gat gcc cat gaa ttc tta aat tac cta cta aat aca att gct gat att | 555 |
| Asp Ala His Glu Phe Leu Asn Tyr Leu Leu Asn Thr Ile Ala Asp Ile | |
| 125 130 135 | |
| tta caa gaa gag aga aag cag gaa aaa caa aat ggt cgt tta cct aat | 603 |
| Leu Gln Glu Glu Arg Lys Gln Glu Lys Gln Asn Gly Arg Leu Pro Asn | |
| 140 145 150 155 | |
| ggt aat att gat aat gaa aat aat aac agc aca cca gac cca acg tgg | 651 |
| Gly Asn Ile Asp Asn Glu Asn Asn Asn Ser Thr Pro Asp Pro Thr Trp | |
| 160 165 170 | |
| gtt cat gag att ttt cag gga aca tta act aat gaa acc aga tgt ctt | 699 |
| Val His Glu Ile Phe Gln Gly Thr Leu Thr Asn Glu Thr Arg Cys Leu | |
| 175 180 185 | |
| act tgt gaa act ata agc agc aaa gat gaa gat ttt tta gac ctt tct | 747 |
| Thr Cys Glu Thr Ile Ser Ser Lys Asp Glu Asp Phe Leu Asp Leu Ser | |
| 190 195 200 | |
| gtt gac gtg gaa caa aat aca tca att act cac tgc tta agg ggt ttc | 795 |
| Val Asp Val Glu Gln Asn Thr Ser Ile Thr His Cys Leu Arg Gly Phe | |
| 205 210 215 | |
| agc aac aca gaa act ctg tgc agt gaa tac aag tat tac tgt gaa gag | 843 |
| Ser Asn Thr Glu Thr Leu Cys Ser Glu Tyr Lys Tyr Tyr Cys Glu Glu | |
| 220 225 230 235 | |
| tgt cgc agc aaa cag gaa gca cac aaa cgg atg aaa gtt aaa aaa ctg | 891 |
| Cys Arg Ser Lys Gln Glu Ala His Lys Arg Met Lys Val Lys Lys Leu | |
| 240 245 250 | |
| ccc atg att cta gct cta cac ctg aag aga ttt aaa tat atg gat caa | 939 |
| Pro Met Ile Leu Ala Leu His Leu Lys Arg Phe Lys Tyr Met Asp Gln | |
| 255 260 265 | |
| ctt cat cga tat aca aaa ctc tct tac cgg gta gtt ttt cct tta gaa | 987 |
| Leu His Arg Tyr Thr Lys Leu Ser Tyr Arg Val Val Phe Pro Leu Glu | |
| 270 275 280 | |
| ctt cgt ctg ttt aac act tca ggt gat gcc acc aat cca gac aga atg | 1035 |
| Leu Arg Leu Phe Asn Thr Ser Gly Asp Ala Thr Asn Pro Asp Arg Met | |
| 285 290 295 | |

| | |
|--|------|
| tac gac ctt gtt gct gtt gtg gtt cac tgt gga agt ggt ccc aat cga | 1083 |
| Tyr Asp Leu Val Ala Val Val Val His Cys Gly Ser Gly Pro Asn Arg | |
| 300 305 310 315 | |
| ggc cat tat att gca ata gtt aag agt cat gat ttt tgg ttg ttg ttt | 1131 |
| Gly His Tyr Ile Ala Ile Val Lys Ser His Asp Phe Trp Leu Leu Phe | |
| 320 325 330 | |
| gat gac gac att gta gaa aaa ata gat gca caa gct att gaa gaa ttc | 1179 |
| Asp Asp Asp Ile Val Glu Lys Ile Asp Ala Gln Ala Ile Glu Glu Phe | |
| 335 340 345 | |
| tac ggg ttg aca tca gat atc tca aag aac tct gag tct ggt tac atc | 1227 |
| Tyr Gly Leu Thr Ser Asp Ile Ser Lys Asn Ser Glu Ser Gly Tyr Ile | |
| 350 355 360 | |
| ctt ttc tat cag tct cgg gac tga gaggggaaccg tgatgaagag acactttctg | 1281 |
| Leu Phe Tyr Gln Ser Arg Asp * | |
| 365 370 | |
| cctcatttct tctctggtta ttttggaag gatcaagcac tgatttttca agaaaagaga | 1341 |
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| ttgacaagcc cttccgatca tggtagttga tttatttgct caggtatcat gctgtctgta | 1461 |
| cagttccata caacaaggag gtgaaatcag agataccagc tcctctttta aaacagcctt | 1521 |
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| ggggtgcagt agaaagaatc ggaatctgtg ccgtattgat aaggagatga tgttgaacac | 1641 |
| actgcataaa tttgcctggt tcagtatgta tagaaggcat attcagtggg cttttcaaga | 1701 |
| gtaaaccaga aatacttttg ggcccaacac ttgcagttgc cttcctgatg taaaaactaa | 1761 |
| catgctagat aatccagtgt cgggaagaca aagatgtttt gcttctctga agaagcttat | 1821 |
| aataatatac agtatatgta tatgtaggga gcaattgggc aaaagtggct ttttgtttcc | 1881 |
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| tattagttaa tgtcagttta agttgtcctt ttgtttgttt ctatttttaa ggtgaatttt | 2061 |
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| tcttaagtat tctaattgtt caagttgaga tcatgcttgg gaaaatcatg tcatagcatt | 2361 |
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1902

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 tcgcccttcc gcagccttca ctccagccct ctgctccgcg acgcc atg aag tcg 174
 Met Lys Ser
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 ccg ttc tac cgc tgc cag aac acc acc tct gtg gaa aaa ggc aac tcg 222
 Pro Phe Tyr Arg Cys Gln Asn Thr Thr Ser Val Glu Lys Gly Asn Ser
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 Ala Val Met Gly Gly Val Leu Phe Ser Thr Gly Leu Leu Gly Asn Leu
 20 25 30 35
 ctg gcc ctg ggg ctg ctg gcg cgc tcg ggg ctg ggg tgg tgc tcg cgg 318
 Leu Ala Leu Gly Leu Leu Ala Arg Ser Gly Leu Gly Trp Cys Ser Arg
 40 45 50
 cgt cca ctg cgc ccg ctg ccc tcg gtc ttc tac atg ctg gtg tgt ggc 366
 Arg Pro Leu Arg Pro Leu Pro Ser Val Phe Tyr Met Leu Val Cys Gly
 55 60 65
 ctg acg gtc acc gac ttg ctg ggc aag tgc ctc cta agc ccg gtg gtg 414
 Leu Thr Val Thr Asp Leu Leu Gly Lys Cys Leu Leu Ser Pro Val Val
 70 75 80
 ctg gct gcc tac gct cag aac cgg agt ctg cgg gtg ctt gcg ccc gca 462
 Leu Ala Ala Tyr Ala Gln Asn Arg Ser Leu Arg Val Leu Ala Pro Ala
 85 90 95
 ttg gac aac tcg ttg tgc caa gcc ttc gcc ttc ttc atg tcc ttc ttt 510
 Leu Asp Asn Ser Leu Cys Gln Ala Phe Ala Phe Phe Met Ser Phe Phe
 100 105 110 115
 ggg ctc tcc tcg aca ctg caa ctc ctg gcc atg gca ctg gag tgc tgg 558
 Gly Leu Ser Ser Thr Leu Gln Leu Leu Ala Met Ala Leu Glu Cys Trp
 120 125 130
 ctc tcc cta ggg cac cct ttc ttc tac cga cgg cac atc acc ctg cgc 606
 Leu Ser Leu Gly His Pro Phe Phe Tyr Arg Arg His Ile Thr Leu Arg
 135 140 145
 ctg ggc gca ctg gtg gcc ccg gtg gtg agc gcc ttc tcc ctg gct ttc 654

| | | | | | | | | | | | | | | | | |
|-------------|----------|-----|-----|-----|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|------|
| Leu | Gly | Ala | Leu | Val | Ala | Pro | Val | Val | Ser | Ala | Phe | Ser | Leu | Ala | Phe | |
| | | 150 | | | | | 155 | | | | | 160 | | | | |
| tgc | gcg | cta | cct | ttc | atg | ggc | ttc | ggg | aag | ttc | gtg | cag | tac | tgc | ccc | 702 |
| Cys | Ala | Leu | Pro | Phe | Met | Gly | Phe | Gly | Lys | Phe | Val | Gln | Tyr | Cys | Pro | |
| | | 165 | | | | 170 | | | | 175 | | | | | | |
| ggc | acc | tgg | tgc | ttt | atc | cag | atg | gtc | cac | gag | gag | ggc | tgc | ctg | tgc | 750 |
| Gly | Thr | Trp | Cys | Phe | Ile | Gln | Met | Val | His | Glu | Glu | Gly | Ser | Leu | Ser | |
| 180 | | | | | 185 | | | | 190 | | | | | | 195 | |
| gtg | ctg | ggg | tac | tct | gtg | ctc | tac | tcc | agc | ctc | atg | gcg | ctg | ctg | gtc | 798 |
| Val | Leu | Gly | Tyr | Ser | Val | Leu | Tyr | Ser | Ser | Leu | Met | Ala | Leu | Leu | Val | |
| | | | | 200 | | | | 205 | | | | | | 210 | | |
| ctc | gcc | acc | gtg | ctg | tgc | aac | ctc | ggc | gcc | atg | cgc | aac | ctc | tat | gcg | 846 |
| Leu | Ala | Thr | Val | Leu | Cys | Asn | Leu | Gly | Ala | Met | Arg | Asn | Leu | Tyr | Ala | |
| | | | 215 | | | | 220 | | | | | 225 | | | | |
| atg | cac | cgg | cgg | ctg | cag | cgg | cac | ccg | cgc | tcc | tgc | acc | agg | gac | tgt | 894 |
| Met | His | Arg | Arg | Leu | Gln | Arg | His | Pro | Arg | Ser | Cys | Thr | Arg | Asp | Cys | |
| | | 230 | | | | 235 | | | | | 240 | | | | | |
| gcc | gag | ccg | cgc | gcg | gac | ggg | agg | gaa | gcg | tcc | cct | cag | ccc | ctg | gag | 942 |
| Ala | Glu | Pro | Arg | Ala | Asp | Gly | Arg | Glu | Ala | Ser | Pro | Gln | Pro | Leu | Glu | |
| | | 245 | | | | 250 | | | | 255 | | | | | | |
| gag | ctg | gat | cac | ctc | ctg | ctg | ctg | gcg | ctg | atg | acc | gtg | ctc | ttc | act | 990 |
| Glu | Leu | Asp | His | Leu | Leu | Leu | Leu | Ala | Leu | Met | Thr | Val | Leu | Phe | Thr | |
| 260 | | | | | 265 | | | | 270 | | | | | | 275 | |
| atg | tgt | tct | ctg | ccc | gta | att | tat | cgc | gct | tac | tat | gga | gca | ttt | aag | 1038 |
| Met | Cys | Ser | Leu | Pro | Val | Ile | Tyr | Arg | Ala | Tyr | Tyr | Gly | Ala | Phe | Lys | |
| | | | | 280 | | | | 285 | | | | | | 290 | | |
| gat | gtc | aag | gag | aaa | aac | agg | acc | tct | gaa | gaa | gca | gaa | gac | ctc | cga | 1086 |
| Asp | Val | Lys | Glu | Lys | Asn | Arg | Thr | Ser | Glu | Glu | Ala | Glu | Asp | Leu | Arg | |
| | | | 295 | | | 300 | | | | | | 305 | | | | |
| gcc | ttg | cga | ttt | cta | tct | gtg | att | tca | att | gtg | gac | cct | tgg | att | ttt | 1134 |
| Ala | Leu | Arg | Phe | Leu | Ser | Val | Ile | Ser | Ile | Val | Asp | Pro | Trp | Ile | Phe | |
| | | 310 | | | | 315 | | | | | | 320 | | | | |
| atc | att | ttc | aga | tct | cca | gta | ttt | cgg | ata | ttt | ttt | cac | aag | att | ttc | 1182 |
| Ile | Ile | Phe | Arg | Ser | Pro | Val | Phe | Arg | Ile | Phe | Phe | His | Lys | Ile | Phe | |
| | | 325 | | | | 330 | | | | | 335 | | | | | |
| att | aga | cct | ctt | agg | tac | agg | agc | cgg | tgc | agc | aat | tcc | act | aac | atg | 1230 |
| Ile | Arg | Pro | Leu | Arg | Tyr | Arg | Ser | Arg | Cys | Ser | Asn | Ser | Thr | Asn | Met | |
| 340 | | | | | 345 | | | | 350 | | | | | 355 | | |
| gaa | tcc | agt | ctg | tga | cagtgttttt | cactctgtgg | taagctgagg | aatatgtcac | | | | | | | | 1285 |
| Glu | Ser | Ser | Leu | * | | | | | | | | | | | | |
| | | | | 360 | | | | | | | | | | | | |
| atttttcagcg | gcaccagc | | | | | | | | | | | | | | | 1303 |

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<220>

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<222> (121) .. (846)

<400> 688

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atg ttt ctt acc cgg tct gag tac gac agg ggc gtg aat act ttt tct      168
Met Phe Leu Thr Arg Ser Glu Tyr Asp Arg Gly Val Asn Thr Phe Ser
   1             5             10             15
ccc gaa gga aga tta ttt caa gtg gaa tat gcc att gag gct atc aag      216
Pro Glu Gly Arg Leu Phe Gln Val Glu Tyr Ala Ile Glu Ala Ile Lys
           20           25           30
ctt ggt tct aca gcc att ggg atc cag aca tca gag ggt gtg tgc cta      264
Leu Gly Ser Thr Ala Ile Gly Ile Gln Thr Ser Glu Gly Val Cys Leu
           35           40           45
gct gtg gag aag aga att act tcc cca ctg atg gag ccc agc agc att      312
Ala Val Glu Lys Arg Ile Thr Ser Pro Leu Met Glu Pro Ser Ser Ile
           50           55           60
gag aaa att gta gag att gat gct cac ata ggt tgt gcc atg agt ggg      360
Glu Lys Ile Val Glu Ile Asp Ala His Ile Gly Cys Ala Met Ser Gly
           65           70           75           80
cta att gct gat gct aag act tta att gat aaa gcc aga gtg gag aca      408
Leu Ile Ala Asp Ala Lys Thr Leu Ile Asp Lys Ala Arg Val Glu Thr
           85           90           95
cag aac cac tgg ttc acc tac aat gag aca atg aca gtg gag agt gtg      456
Gln Asn His Trp Phe Thr Tyr Asn Glu Thr Met Thr Val Glu Ser Val
           100           105           110
acc caa gct gtg tcc aat ctg gct ttg cag ttt gga gaa gaa gat gca      504
Thr Gln Ala Val Ser Asn Leu Ala Leu Gln Phe Gly Glu Glu Asp Ala
           115           120           125
gat cca ggt gcc atg tct cgt ccc ttt gga gta gca tta tta ttt gga      552
Asp Pro Gly Ala Met Ser Arg Pro Phe Gly Val Ala Leu Leu Phe Gly
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gga gtt gat gag aaa gga ccc cag ctg ttt cat atg gac cca tct ggg      600
Gly Val Asp Glu Lys Gly Pro Gln Leu Phe His Met Asp Pro Ser Gly
           145           150           155           160
acc ttt gta cag tgt gat gct cga gca att ggc tct gct tca gag ggt      648
Thr Phe Val Gln Cys Asp Ala Arg Ala Ile Gly Ser Ala Ser Glu Gly
           165           170           175
gcc cag agc tcc ttg caa gaa gtt tac cac aag tct atg act ttg aaa      696
Ala Gln Ser Ser Leu Gln Glu Val Tyr His Lys Ser Met Thr Leu Lys
           180           185           190
gaa gcc atc aag tct tca ctc atc atc ctc aaa caa gta atg gag gag      744
Glu Ala Ile Lys Ser Ser Leu Ile Ile Leu Lys Gln Val Met Glu Glu
           195           200           205
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Lys Leu Asn Ala Thr Asn Ile Glu Leu Ala Thr Val Gln Pro Gly Gln

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| | | | |
|--|-----|-----|------|
| 210 | 215 | 220 | |
| aat ttc cac atg ttc aca aag gaa gaa ctt gaa gag gtt atc aag gac | | | 840 |
| Asn Phe His Met Phe Thr Lys Glu Glu Leu Glu Glu Val Ile Lys Asp | | | |
| 225 | 230 | 235 | 240 |
| att taa ggaatcctga tcctcagaac ttctctggga caatttcagt tctaataatg | | | 896 |
| Ile * | | | |
| tccttaaatt ttatttccag ctctgttcc ttggaaaatc tccattgtat gtgcattttt | | | 956 |
| taa atgatgt ctgtacataa aggcagttct gaaataaaga aaatttttaa atattaaaaa | | | 1016 |
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| atg ctc ggc agg tct ggg tac cgg gcg ctg ccc ctg ggt gat ttt gac | 106 |
| Met Leu Gly Arg Ser Gly Tyr Arg Ala Leu Pro Leu Gly Asp Phe Asp | |
| 1 5 10 15 | |
| cgc ttc cag cag tgc agc ttc ggc ttt ctg ggc tgc cag aag ggc tgc | 154 |
| Arg Phe Gln Gln Ser Ser Phe Gly Phe Leu Gly Ser Gln Lys Gly Cys | |
| 20 25 30 | |
| ttg tcc ccg gag cgg ggc ggc gtg ggg aca ggg gcc gat gta ccc cag | 202 |
| Leu Ser Pro Glu Arg Gly Gly Val Gly Thr Gly Ala Asp Val Pro Gln | |
| 35 40 45 | |
| agc tgg ccc tcc tgc ctc tgt cat ggc ctc atc agt ttc ctg ggg ttc | 250 |
| Ser Trp Pro Ser Cys Leu Cys His Gly Leu Ile Ser Phe Leu Gly Phe | |
| 50 55 60 | |
| ttg ctg ctg ttg gtc acc ttc ccc att tct ggc tgg ttt gcc ctg aag | 298 |
| Leu Leu Leu Leu Val Thr Phe Pro Ile Ser Gly Trp Phe Ala Leu Lys | |
| 65 70 75 80 | |
| att gtg ccc acc tac gag cgg atg att gtg ttc cgc ctg ggc cgg atc | 346 |
| Ile Val Pro Thr Tyr Glu Arg Met Ile Val Phe Arg Leu Gly Arg Ile | |
| 85 90 95 | |
| cgc acc ccc cag gga cct ggc atg gtt ctg ctc ttg ccc ttc att gac | 394 |
| Arg Thr Pro Gln Gly Pro Gly Met Val Leu Leu Leu Pro Phe Ile Asp | |
| 100 105 110 | |
| tcc ttt cag agg gtg gat ctg agg aca cga gcc ttc aac gtc cct ccc | 442 |
| Ser Phe Gln Arg Val Asp Leu Arg Thr Arg Ala Phe Asn Val Pro Pro | |
| 115 120 125 | |
| tgc aag ctg gcc tct aag gac ggg gct gtg ctg tcc gtg gga gcc gat | 490 |
| Cys Lys Leu Ala Ser Lys Asp Gly Ala Val Leu Ser Val Gly Ala Asp | |

| 130 | 135 | 140 | |
|---|-----|-----|------|
| gtc cag ttt cgc atc tgg gac ccg gtg ctg tgc gtg atg act gtg aaa | | | 538 |
| Val Gln Phe Arg Ile Trp Asp Pro Val Leu Ser Val Met Thr Val Lys | | | |
| 145 | 150 | 155 | 160 |
| gac ctg aac aca gcc aca cgc atg aca gcc cag aac gcc atg acc aag | | | 586 |
| Asp Leu Asn Thr Ala Thr Arg Met Thr Ala Gln Asn Ala Met Thr Lys | | | |
| | 165 | 170 | 175 |
| gcc ctg ctc aag agg ccg ctg cgg gag atc cag atg gag aag ctc aag | | | 634 |
| Ala Leu Leu Lys Arg Pro Leu Arg Glu Ile Gln Met Glu Lys Leu Lys | | | |
| | 180 | 185 | 190 |
| atc agc gac cag ctt ctg ctg gag atc aac gat gtg acc agg gcc tgg | | | 682 |
| Ile Ser Asp Gln Leu Leu Leu Glu Ile Asn Asp Val Thr Arg Ala Trp | | | |
| | 195 | 200 | 205 |
| ggg ctg gag gta gac cgc gtg gag ctg gca gtg gag gcc gtg ctc cag | | | 730 |
| Gly Leu Glu Val Asp Arg Val Glu Leu Ala Val Glu Ala Val Leu Gln | | | |
| | 210 | 215 | 220 |
| ccg ccc cag gac agc cca gct ggg ccc aac ctg gac agc acc ctc cag | | | 778 |
| Pro Pro Gln Asp Ser Pro Ala Gly Pro Asn Leu Asp Ser Thr Leu Gln | | | |
| | 225 | 230 | 235 |
| cag ctg gcc ctg cac ttc ctg gga gga agc atg aac tca atg gca gga | | | 826 |
| Gln Leu Ala Leu His Phe Leu Gly Gly Ser Met Asn Ser Met Ala Gly | | | |
| | 245 | 250 | 255 |
| ggt gcc ccg tcc ccg ggg cca gca gac acc gtg gag atg gtg agt gaa | | | 874 |
| Gly Ala Pro Ser Pro Gly Pro Ala Asp Thr Val Glu Met Val Ser Glu | | | |
| | 260 | 265 | 270 |
| gtt gag cca cct gcc cct caa gtt ggt gcc agg tcc agt ccg aag cag | | | 922 |
| Val Glu Pro Pro Ala Pro Gln Val Gly Ala Arg Ser Ser Pro Lys Gln | | | |
| | 275 | 280 | 285 |
| cct ctg gcg gag ggg cta ctg act gct cta cag ccc ttc ctg tct gag | | | 970 |
| Pro Leu Ala Glu Gly Leu Leu Thr Ala Leu Gln Pro Phe Leu Ser Glu | | | |
| | 290 | 295 | 300 |
| gcc ctg gtc agc caa gtc ggg gcc tgc tac cag ttc aat gtc gtc ctg | | | 1018 |
| Ala Leu Val Ser Gln Val Gly Ala Cys Tyr Gln Phe Asn Val Val Leu | | | |
| | 305 | 310 | 315 |
| ccc agc ggc acc caa agc gcc tac ttc ctg gac ctc act aca gga cga | | | 1066 |
| Pro Ser Gly Thr Gln Ser Ala Tyr Phe Leu Asp Leu Thr Thr Gly Arg | | | |
| | 325 | 330 | 335 |
| gga aga gtg gga cac ggg gtg cct gat ggc atc cct gat gtg gtg gtg | | | 1114 |
| Gly Arg Val Gly His Gly Val Pro Asp Gly Ile Pro Asp Val Val Val | | | |
| | 340 | 345 | 350 |
| gag atg gcc gag gca gac ctg cgg gcc ctg cta tgc aga gag ctg cgg | | | 1162 |
| Glu Met Ala Glu Ala Asp Leu Arg Ala Leu Leu Cys Arg Glu Leu Arg | | | |
| | 355 | 360 | 365 |
| ccc ctg ggg gcc tac atg agt gga cgg ctg aag gtg aag ggc gac ctg | | | 1210 |
| Pro Leu Gly Ala Tyr Met Ser Gly Arg Leu Lys Val Lys Gly Asp Leu | | | |
| | 370 | 375 | 380 |
| gct atg gcc atg aag ctg gag gct gtc ctc agg gcc ttg aag tag cag | | | 1258 |
| Ala Met Ala Met Lys Leu Glu Ala Val Leu Arg Ala Leu Lys * | | | |

385 390 395

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gaggaggagg tgttcatctg caccacagag agttgaggcc ctaacaaatt tcaggcccag 1378

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tacagtgggtt ctctggacaa ggctttgtcc atcccgggtcc ccagctgagt gcccagcgct 1498

gagctgggtg cacgggtgtga ttccaggagg agagccaggc ctgccctgcc ctgctggctt 1558

cctgactgga gagacaggac ccacagaaac agcctgacag cagctgggtt ggtccttgtg 1618

tgagggacca agcatgtggc ccaggctcta agctctgcgg ggattggaga gggatgggga 1678

gggaagggaa ggcagctcca agaagaggtc cctgtggcga agttacctgg ggatcctggc 1738

tggcccacct tcttggctgc agtccaggcc cgtgctggcg ggattgggca tgggaaggag 1798

cagggcctgc tgettccttg gcgctgctcc caaagatttc tgactcatct gccagctccg 1858

tcttgcctgc ctggcgagct ggggcccagg gcagcatgaa ggagagccct gcgttctgtg 1918

cttcttacca gaggtttgca agcctcagac aaataaatgt ggtgtttaca atgtaaaaaa 1978

aagacttcag tcatcccagc aatcgcttgg ttcagtttca ttcagctctc tatggaccag 2038

taatctgata aataaccgag ctcttctttg gggatcacta cttcttgact tgtagtaact 2098

gccaccaatc aagcagtctc tcccctgcaa aaca 2132

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 <211> 575
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (134) .. (499)

<400> 690

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tacgtaagct tggatcctct agagcggccg cctactacta ctaaattcgc ggcggcgacg 120

tggtgaaata gat atg gcg acc gag ggg gat gtg gag ctg gag ttg gag 169
 Met Ala Thr Glu Gly Asp Val Glu Leu Glu Leu Glu
 1 5 10

act gag acc agt gga cca gag cgg cct ccg gag aag cca cgg aaa cat 217
 Thr Glu Thr Ser Gly Pro Glu Arg Pro Pro Glu Lys Pro Arg Lys His
 15 20 25

gac agc ggt gcg gcg gac ttg gag cgg gtc acc gac tat gca gag gag 265
 Asp Ser Gly Ala Ala Asp Leu Glu Arg Val Thr Asp Tyr Ala Glu Glu
 30 35 40

aag gag atc cag agt tcc aat ctg gag acg gcc atg tct gtg att gga 313
 Lys Glu Ile Gln Ser Ser Asn Leu Glu Thr Ala Met Ser Val Ile Gly
 45 50 55 60

```

gac aga agg tcc cgg gag cag aaa gcc aaa cag gag cgg gag aaa gaa      361
Asp Arg Arg Ser Arg Glu Gln Lys Ala Lys Gln Glu Arg Glu Lys Glu
          65                      70                      75

ctg gca aaa gtc act atc aag aag gaa gat ctg gag cta ata atg act      409
Leu Ala Lys Val Thr Ile Lys Lys Glu Asp Leu Glu Leu Ile Met Thr
          80                      85                      90

gag atg gag ata tct cga gca gca gca gaa cgc agt ttg cgg gaa cac      457
Glu Met Glu Ile Ser Arg Ala Ala Ala Glu Arg Ser Leu Arg Glu His
          95                      100                      105

atg ggc aac gtg gta gag gcg ctt att gcc cta acc aac tga tgcgtgc      506
Met Gly Asn Val Val Glu Ala Leu Ile Ala Leu Thr Asn *
          110                      115                      120

tttctcaaata atacctactg gattaattta tggcaataaaa attttttttt gtctttttaa      566

aaaaaaaaa                                                                575

```

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<220>
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                                     Met Glu
                                     1

gcg gtg gtg ttc gtc ttc tct ctc ctc gat tgt tgc gcg ctc atc ttc      105
Ala Val Val Phe Val Phe Ser Leu Leu Asp Cys Cys Ala Leu Ile Phe
          5                      10                      15

ctc tcg gtc tac ttc ata att aca ttg tct gat tta gaa tgt gat tac      153
Leu Ser Val Tyr Phe Ile Ile Thr Leu Ser Asp Leu Glu Cys Asp Tyr
          20                      25                      30

att aat gct aga tca tgt tgc tca aaa tta aac aag tgg gta att cca      201
Ile Asn Ala Arg Ser Cys Cys Ser Lys Leu Asn Lys Trp Val Ile Pro
          35                      40                      45                      50

gaa ttg att ggc cat acc att gtc act gta tta ctg ctc atg tca ttg      249
Glu Leu Ile Gly His Thr Ile Val Thr Val Leu Leu Leu Met Ser Leu
          55                      60                      65

cac tgg ttc atc ttc ctt ctc aac tta cct gtt gcc act tgg aat ata      297
His Trp Phe Ile Phe Leu Leu Asn Leu Pro Val Ala Thr Trp Asn Ile
          70                      75                      80

tat cga tac att atg gtg ccg agt ggt aac atg gga gtg ttt gat cca      345
Tyr Arg Tyr Ile Met Val Pro Ser Gly Asn Met Gly Val Phe Asp Pro
          85                      90                      95

aca gaa ata cac aat cga ggg cag ctg aag tca cac atg aaa gaa gcc      393
Thr Glu Ile His Asn Arg Gly Gln Leu Lys Ser His Met Lys Glu Ala

```

| 100 | 105 | 110 | |
|---|-----|-----|-----|
| atg atc aag ctt ggt ttc cac ttg ctc tgc ttc ttc atg tat ctt tat | | | 441 |
| Met Ile Lys Leu Gly Phe His Leu Leu Cys Phe Phe Met Tyr Leu Tyr | | | |
| 115 | 120 | 125 | 130 |
| agt atg atc tta gct ttg ata aat gac tga a gccgtggttg aagtcagcct | | | 492 |
| Ser Met Ile Leu Ala Leu Ile Asn Asp * | | | |
| | 135 | 140 | |
| acactacagt gcacagttga ggagccagag acttcttaaa tcatccttag aaccgtgacc | | | 552 |
| atagcagtat atattttcct cttggaacaa aaaactattt ttgctgtatt tttaccatat | | | 612 |
| aaagtattta aaaaacataa aaaaaaaaaa | | | 642 |

<210> 692
 <211> 3135
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (489) .. (2900)

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|---|-----|
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| aagagatgac cgctgtagca ggcctcaatt taaccctcac taaagggaat aagcttgccg | 60 |
| ccgcaatgct ttttttaggtg tttttttttg gggctggggt gtgtttattt gggatatatac | 120 |
| aatgagtcac ggattaaaat tgcttccagc ggatagatac ctaggtgttc cacagcatta | 180 |
| ctgaacaagc tgctgtcatt tccccattac ctcagaagac ccccttaatt acttacttat | 240 |
| attaactgta gaacgtattt atgcatacca ggctctacct ctgggctttc tattctgttc | 300 |
| cagagacca gtaccagaat atttaaataca ctgggggagc taaatacggt ttaatatctg | 360 |
| atagggccag tttctgagca ttgcacattt ttttttcccc tttcaggaac gtgttcaggc | 420 |
| ccgcggcagg gggcgggagc gcgcctctc ctcgggtctg gttccagccg agcctctcgg | 480 |
| acgcagag atg gaa atc ccg aag ctg ctc ccg gct cgc ggg aca cta cag | 530 |
| Met Glu Ile Pro Lys Leu Leu Pro Ala Arg Gly Thr Leu Gln | |
| 1 5 10 | |
| ggc ggc ggc ggc ggc ggt atc ccc gcg ggt ggc ggc cga gtc cac cga | 578 |
| Gly Gly Gly Gly Gly Gly Ile Pro Ala Gly Gly Gly Arg Val His Arg | |
| 15 20 25 30 | |
| ggc cct gac tcg ccg gct ggc cag gtc ccc acg cgc cgc ctc ctg ctg | 626 |
| Gly Pro Asp Ser Pro Ala Gly Gln Val Pro Thr Arg Arg Leu Leu Leu | |
| 35 40 45 | |
| ctc cgg ggc ccc caa gat ggc ggg ccc ggg cgg cgg cgc gag gag gcc | 674 |
| Leu Arg Gly Pro Gln Asp Gly Gly Pro Gly Arg Arg Arg Glu Glu Ala | |
| 50 55 60 | |
| agc acg gca tca cgg ggc cct ggc cca agc ctg ttg gcg ccg agg acc | 722 |
| Ser Thr Ala Ser Arg Gly Pro Gly Pro Ser Leu Leu Ala Pro Arg Thr | |
| 65 70 75 | |

| | |
|---|------|
| gat caa cct agc ggc ggc ggc ggc ggc ggc ggc gac gac ttc ttc ctg | 770 |
| Asp Gln Pro Ser Gly Gly Gly Gly Gly Gly Gly Asp Asp Phe Phe Leu | |
| 80 85 90 | |
| gtg ctg ctt gac ccg gtg ggt ggc gac gtg gag acc gcg ggc tcc ggt | 818 |
| Val Leu Leu Asp Pro Val Gly Gly Asp Val Glu Thr Ala Gly Ser Gly | |
| 95 100 105 110 | |
| cag gcc gca ggg cct gtg ttg agg gag gag gcc gag gag ggc ccg ggg | 866 |
| Gln Ala Ala Gly Pro Val Leu Arg Glu Glu Ala Glu Glu Gly Pro Gly | |
| 115 120 125 | |
| ctc cag ggg ggc gag agc ggc gcg aat ccc gcg ggg ccc act gcg cta | 914 |
| Leu Gln Gly Gly Glu Ser Gly Ala Asn Pro Ala Gly Pro Thr Ala Leu | |
| 130 135 140 | |
| ggc ccc cgc tgc ctg tcc gcg gtt ccc act ccg gcc ccg atc tcc gcc | 962 |
| Gly Pro Arg Cys Leu Ser Ala Val Pro Thr Pro Ala Pro Ile Ser Ala | |
| 145 150 155 | |
| ccc ggc ccc gcc gcg gcc ttc gcg ggc aca gtc act atc cac aac cag | 1010 |
| Pro Gly Pro Ala Ala Ala Phe Ala Gly Thr Val Thr Ile His Asn Gln | |
| 160 165 170 | |
| gac ctg ctg ttg cgc ttt gag aac ggc gtc ctc acc ctg gcc acg ccc | 1058 |
| Asp Leu Leu Leu Arg Phe Glu Asn Gly Val Leu Thr Leu Ala Thr Pro | |
| 175 180 185 190 | |
| cca cca cac gcc tgg gag cca ggg gcc gct cct gcc cag cag ccc ggg | 1106 |
| Pro Pro His Ala Trp Glu Pro Gly Ala Ala Pro Ala Gln Gln Pro Gly | |
| 195 200 205 | |
| tgt ctg atc gcc ccg caa gct ggg ttc ccg cat gcc gcg cac ccg ggt | 1154 |
| Cys Leu Ile Ala Pro Gln Ala Gly Phe Pro His Ala Ala His Pro Gly | |
| 210 215 220 | |
| gac tgc cca gag ctg ccg cca gac ctc ctg cta gct gag ccg gcc gaa | 1202 |
| Asp Cys Pro Glu Leu Pro Pro Asp Leu Leu Leu Ala Glu Pro Ala Glu | |
| 225 230 235 | |
| ccc gcg cca gct ccg gcg cct gag gag gag gcg gag ggc ccg gcc gcc | 1250 |
| Pro Ala Pro Ala Pro Ala Pro Glu Glu Glu Ala Glu Gly Pro Ala Ala | |
| 240 245 250 | |
| gcc ctg ggc ccc cgc gga ccg ctg ggc tcc ggc cca ggc gtg gtg ctg | 1298 |
| Ala Leu Gly Pro Arg Gly Pro Leu Gly Ser Gly Pro Gly Val Val Leu | |
| 255 260 265 270 | |
| tac ttg tgc ccc gag gcg cag tgc ggg caa acc ttc gcc aag aag cac | 1346 |
| Tyr Leu Cys Pro Glu Ala Gln Cys Gly Gln Thr Phe Ala Lys Lys His | |
| 275 280 285 | |
| cag ctg aag gtg cac ctg ctg acg cac agc agc agc cag ggc cag agg | 1394 |
| Gln Leu Lys Val His Leu Leu Thr His Ser Ser Ser Gln Gly Gln Arg | |
| 290 295 300 | |
| ccc ttc aaa tgc ccc ctg ggt ggc tgc ggc tgg acc ttc acc acc tct | 1442 |
| Pro Phe Lys Cys Pro Leu Gly Gly Cys Gly Trp Thr Phe Thr Thr Ser | |
| 305 310 315 | |
| tac aag ctc aag agg cac ctg cag tcg cac gac aaa ctg cgg ccc ttt | 1490 |
| Tyr Lys Leu Lys Arg His Leu Gln Ser His Asp Lys Leu Arg Pro Phe | |
| 320 325 330 | |

| | |
|---|------|
| ggc tgc ccg gca gag ggc tgt ggc aag agc ttc acc aca gtg tac aac | 1538 |
| Gly Cys Pro Ala Glu Gly Cys Gly Lys Ser Phe Thr Thr Val Tyr Asn | |
| 335 340 345 350 | |
| ctc aag gcg cac atg aag ggc cat gag cag gag aac tca ttc aaa tgc | 1586 |
| Leu Lys Ala His Met Lys Gly His Glu Gln Glu Asn Ser Phe Lys Cys | |
| 355 360 365 | |
| gag gtg tgc gag gag agc ttc ccc acg cag gcc aaa ctc agc gcc cac | 1634 |
| Glu Val Cys Glu Glu Ser Phe Pro Thr Gln Ala Lys Leu Ser Ala His | |
| 370 375 380 | |
| cag cgc agc cac ttc gaa ccg gag agg cct tac cag tgc gcg ttt tct | 1682 |
| Gln Arg Ser His Phe Glu Pro Glu Arg Pro Tyr Gln Cys Ala Phe Ser | |
| 385 390 395 | |
| ggc tgc aag aag aca ttt atc aca gtg agt gct ctg ttt tcc cat aac | 1730 |
| Gly Cys Lys Lys Thr Phe Ile Thr Val Ser Ala Leu Phe Ser His Asn | |
| 400 405 410 | |
| cgc gcc cat ttc agg gaa cag gaa ctg ttt tcc tgc tct ttt cct ggc | 1778 |
| Arg Ala His Phe Arg Glu Gln Glu Leu Phe Ser Cys Ser Phe Pro Gly | |
| 415 420 425 430 | |
| tgc agc aaa caa tat gac aag gct tgt agg ctg aaa att cac ctg cgg | 1826 |
| Cys Ser Lys Gln Tyr Asp Lys Ala Cys Arg Leu Lys Ile His Leu Arg | |
| 435 440 445 | |
| agt cac acc ggc gag aga cct ttc ctt tgt gac ttt gat ggc tgt ggc | 1874 |
| Ser His Thr Gly Glu Arg Pro Phe Leu Cys Asp Phe Asp Gly Cys Gly | |
| 450 455 460 | |
| tgg aac ttc act agc atg tcc aaa ctc tta agg cac aaa aga aag cac | 1922 |
| Trp Asn Phe Thr Ser Met Ser Lys Leu Leu Arg His Lys Arg Lys His | |
| 465 470 475 | |
| gac gat gac cgg agg ttc atg tgc cct gtg gaa ggc tgt ggg aaa tct | 1970 |
| Asp Asp Asp Arg Arg Phe Met Cys Pro Val Glu Gly Cys Gly Lys Ser | |
| 480 485 490 | |
| ttc acg agg gcg gaa cat ctg aaa ggc cac agc ata acc cac ctg ggc | 2018 |
| Phe Thr Arg Ala Glu His Leu Lys Gly His Ser Ile Thr His Leu Gly | |
| 495 500 505 510 | |
| aca aag cct ttc gtg tgt cct gtg gca ggc tgc tgt gcc agg ttc tct | 2066 |
| Thr Lys Pro Phe Val Cys Pro Val Ala Gly Cys Cys Ala Arg Phe Ser | |
| 515 520 525 | |
| gct cgc agt agc ctc tac att cac tcc aag aaa cac ctg cag gat gtg | 2114 |
| Ala Arg Ser Ser Leu Tyr Ile His Ser Lys Lys His Leu Gln Asp Val | |
| 530 535 540 | |
| gac act tgg aaa agc cgt tgc ccg atc tcc tct tgt aat aaa ctc ttc | 2162 |
| Asp Thr Trp Lys Ser Arg Cys Pro Ile Ser Ser Cys Asn Lys Leu Phe | |
| 545 550 555 | |
| aca tcc aag cac agc atg aag acg cac atg gtt aaa agg cat aag gtg | 2210 |
| Thr Ser Lys His Ser Met Lys Thr His Met Val Lys Arg His Lys Val | |
| 560 565 570 | |
| ggc cag gat ctc tta gct cag cta gaa gca gca aat tct ctc aca ccc | 2258 |
| Gly Gln Asp Leu Leu Ala Gln Leu Glu Ala Ala Asn Ser Leu Thr Pro | |
| 575 580 585 590 | |

| | |
|---|------|
| agc agt gaa ctt acc agc cag aga cag aat gat ctc agt gat gca gag Ser Ser Glu Leu Thr Ser Gln Arg Gln Asn Asp Leu Ser Asp Ala Glu 595 600 605 | 2306 |
| ata gtg tct ctc ttc tct gat gta cct gac agt act tct gct gca ttg Ile Val Ser Leu Phe Ser Asp Val Pro Asp Ser Thr Ser Ala Ala Leu 610 615 620 | 2354 |
| ctg gac aca gca ttg gtg aac tct gga atc ttg act att gat gtg gct Leu Asp Thr Ala Leu Val Asn Ser Gly Ile Leu Thr Ile Asp Val Ala 625 630 635 | 2402 |
| tct gtg agc tcg act ctg gca ggg cac ctc cct gct aat aat aat aat Ser Val Ser Ser Thr Leu Ala Gly His Leu Pro Ala Asn Asn Asn Asn 640 645 650 | 2450 |
| tcc gta ggg cag gct gtg gac cct ccg tcc ttg atg gcc acc agc gac Ser Val Gly Gln Ala Val Asp Pro Pro Ser Leu Met Ala Thr Ser Asp 655 660 665 670 | 2498 |
| cct cct caa agt ctg gat acc tct ctc ttt ttt gga acg gcg gcc act Pro Pro Gln Ser Leu Asp Thr Ser Leu Phe Phe Gly Thr Ala Ala Thr 675 680 685 | 2546 |
| ggc ttt cag cag agc tcc tta aat atg gat gag gtc tca agt gta agt Gly Phe Gln Gln Ser Ser Leu Asn Met Asp Glu Val Ser Ser Val Ser 690 695 700 | 2594 |
| gtg ggg cca ttg gga tct ctg gac tct ttg gcc atg aaa aac tcc agt Val Gly Pro Leu Gly Ser Leu Asp Ser Leu Ala Met Lys Asn Ser Ser 705 710 715 | 2642 |
| cca gag cct cag gct ttg aca ccc agc agt aag cta aca gtg gac aca Pro Glu Pro Gln Ala Leu Thr Pro Ser Ser Lys Leu Thr Val Asp Thr 720 725 730 | 2690 |
| gat gct ctg act cct tcg agc acc ctt tgt gaa aac agt gtc tca gaa Asp Ala Leu Thr Pro Ser Ser Thr Leu Cys Glu Asn Ser Val Ser Glu 735 740 745 750 | 2738 |
| cta ctg aca cca acc aaa gcg gag tgg aac gta cat cct gac tct gac Leu Leu Thr Pro Thr Lys Ala Glu Trp Asn Val His Pro Asp Ser Asp 755 760 765 | 2786 |
| ttc ttt gga cag gag gga gaa acc cag ttt gga ttc ccc aat gca gca Phe Phe Gly Gln Glu Gly Glu Thr Gln Phe Gly Phe Pro Asn Ala Ala 770 775 780 | 2834 |
| gga aac cat ggt tct cag aaa gaa aca gat ctt atc act gtg act ggc Gly Asn His Gly Ser Gln Lys Glu Thr Asp Leu Ile Thr Val Thr Gly 785 790 795 | 2882 |
| agc tca ttt ttg gta tga accaac tctattcatt cctcatcatg tggcttactt Ser Ser Phe Leu Val * 800 | 2936 |
| ttattacagt caattttgag gatattctgg actaaatatt taagtgcagt catttctttt | 2996 |
| tggtttgcaa aaagagcaca gccctggact acaagtttgg agatttaaata ctgatcttga | 3056 |
| gtttgggact gacaagtggg gtgacctgag caagtcagtt aactatctga gcttaattcc | 3116 |
| ctaattataa ttgggggggt | 3135 |

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<210> 693
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<212> DNA
<213> Homo sapiens
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<222> (146) .. (613)
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<222> (1)...(1636)  
<223> n = a,t,c or g
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| attgancctt gtagcgagac ccaagctggc tagcgtttaa acttaagctt ggtaccgagc | | | | | | | | | | | | | | | | 60 |
| tcggatccac tagtccagtg tggtggaatt ccggctgcgt gagaggcgcg cggcggcgca | | | | | | | | | | | | | | | | 120 |
| gtgaacagtc tccttcacaa aaacc atg gcg tcg ctc aaa tgt agc acc gtc | | | | | | | | | | | | | | | | 172 |
| Met Ala Ser Leu Lys Cys Ser Thr Val | | | | | | | | | | | | | | | | |
| 1 5 | | | | | | | | | | | | | | | | |
| gtc tgc gtg atc tgc ttg gag aag ccc aaa tac cgc tgt cca gcc tgc | | | | | | | | | | | | | | | | 220 |
| Val Cys Val Ile Cys Leu Glu Lys Pro Lys Tyr Arg Cys Pro Ala Cys | | | | | | | | | | | | | | | | |
| 10 15 20 25 | | | | | | | | | | | | | | | | |
| cgc gtg ccc tac tgc tcg gta gtc tgc ttc cgg aag cac aaa gaa cag | | | | | | | | | | | | | | | | 268 |
| Arg Val Pro Tyr Cys Ser Val Val Cys Phe Arg Lys His Lys Glu Gln | | | | | | | | | | | | | | | | |
| 30 35 40 | | | | | | | | | | | | | | | | |
| tgc aac cct gaa act cgt cct gtt gag aaa aaa ata aga tca gct ctt | | | | | | | | | | | | | | | | 316 |
| Cys Asn Pro Glu Thr Arg Pro Val Glu Lys Lys Ile Arg Ser Ala Leu | | | | | | | | | | | | | | | | |
| 45 50 55 | | | | | | | | | | | | | | | | |
| cct acc aaa acc gta aag cct gtg gaa aac aaa gat gat gat gac tct | | | | | | | | | | | | | | | | 364 |
| Pro Thr Lys Thr Val Lys Pro Val Glu Asn Lys Asp Asp Asp Asp Ser | | | | | | | | | | | | | | | | |
| 60 65 70 | | | | | | | | | | | | | | | | |
| ata gct gat ttt ctc aat agt gat gag gaa gaa gac aga gtt tct ttg | | | | | | | | | | | | | | | | 412 |
| Ile Ala Asp Phe Leu Asn Ser Asp Glu Glu Glu Asp Arg Val Ser Leu | | | | | | | | | | | | | | | | |
| 75 80 85 | | | | | | | | | | | | | | | | |
| cag aat tta aag aat tta ggg gaa tct gca aca tta aga agc tta ttg | | | | | | | | | | | | | | | | 460 |
| Gln Asn Leu Lys Asn Leu Gly Glu Ser Ala Thr Leu Arg Ser Leu Leu | | | | | | | | | | | | | | | | |
| 90 95 100 105 | | | | | | | | | | | | | | | | |
| ctc aat cca cac ctc agg cag ttg atg gtc aac ctc gat cag gga gaa | | | | | | | | | | | | | | | | 508 |
| Leu Asn Pro His Leu Arg Gln Leu Met Val Asn Leu Asp Gln Gly Glu | | | | | | | | | | | | | | | | |
| 110 115 120 | | | | | | | | | | | | | | | | |
| gac aaa gca aag ctc atg aga gct tac atg caa gag cct ttg ttt gtg | | | | | | | | | | | | | | | | 556 |
| Asp Lys Ala Lys Leu Met Arg Ala Tyr Met Gln Glu Pro Leu Phe Val | | | | | | | | | | | | | | | | |
| 125 130 135 | | | | | | | | | | | | | | | | |
| gag ttt gca gac tgc tgt tta gga att gtg gag cca tcc cag aat gag | | | | | | | | | | | | | | | | 604 |
| Glu Phe Ala Asp Cys Cys Leu Gly Ile Val Glu Pro Ser Gln Asn Glu | | | | | | | | | | | | | | | | |
| 140 145 150 | | | | | | | | | | | | | | | | |
| gag tct taa gatggat tattgtgctg cttgctcaag cgtgtgcttg actcctggaa | | | | | | | | | | | | | | | | 660 |

Glu Ser *
155

```

cctgcctgct ccctctccca gaccagctag tttggggctg gggagctcag gcaaaagagg      720
tttccaggat gcagattagg tcatgcaggc ctttaccggc attgatgtgg ctcatgtttc      780
aggcagactt ggggtcctta aggtggcaag tcctttatgg agagaaaact tgacattcag      840
atgattgttt ttaaattgtt tacttttggg acagttgata gacatcataa acgatatcaa      900
gcttacactt catatggagt taaacttggg cagtgttaat aaaatcaaaa cgtgattcta      960
ctgtacattg cattattcat aattttaattg tttgaaatta cattaaataa atcaactaat     1020
taaatactaa agttttgttc ctttttaaag gaaataacca caagattttt cccagcccaa     1080
attccagcgc caattttagg ccaactttgg ctgttttctt ccaaaagtgc ttatgtggaa     1140
ttgggatccc cagtgtagtg acagacagtc atgactgctg ctgagtttga tctgtgaagg     1200
tagtgaaatg tggccctgat gtttcttaac cctgatttgg taactaccag ccctgacacc     1260
atcagtgcct gatgtagcct ggaaccccag gccactgac gcactgggca cggggctctg     1320
ggtcgaaggc tggagccgtc actgttggtc atgtgcattt ggagcactgt gggaatagtc     1380
tggcagctgt gtgctgatta aatgtctttg gcaaggcagg gggcaggaaa aggccttgtg     1440
gaaacaaagg caccaaggat caccacagcc cagtgaaggc agaagaggtc acgtggatca     1500
gcctgtgtct ttccagcaga atctgattaa agcctgtaat gctgtagggt gaaggttcag     1560
ggcagatgtc agcgcacgcg tgggcggacg cgtgggtcga cccgggaatt ccggaccggt     1620
accgcacgcg atcgat                                     1636

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<210> 694
<211> 2874
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1) .. (2874)

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<400> 694
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Met Pro Gly Arg Arg Pro Arg Pro Leu Ser Ala Glu Leu Gly Gly Ser
  1             5             10             15

acc cag gcc atg agg gac aaa tgt gga gca agg gat gga gct gga act      96
Thr Gln Ala Met Arg Asp Lys Cys Gly Ala Arg Asp Gly Ala Gly Thr
          20             25             30

tgc tat tat ggg acg tta aag ctg gca gga cct gag agc ctt aga tgg      144
Cys Tyr Tyr Gly Thr Leu Lys Leu Ala Gly Pro Glu Ser Leu Arg Trp
      35             40             45

ctt gcc tta gat ggc gaa agg gat gtt gca gat aca atg aag aat ttt      192
Leu Ala Leu Asp Gly Glu Arg Asp Val Ala Asp Thr Met Lys Asn Phe

```

| 50 | 55 | 60 | |
|---|-----|-----|-----|
| gag atg cgg att ctc ctg gat tac cca ggt ggg ccc agc aca atc act | | | 240 |
| Glu Met Arg Ile Leu Leu Asp Tyr Pro Gly Gly Pro Ser Thr Ile Thr | | | |
| 65 | 70 | 75 | 80 |
| gga tca gag aga gta gaa gat gcc tct ttg ctg gct ttg aag atg gag | | | 288 |
| Gly Ser Glu Arg Val Glu Asp Ala Ser Leu Leu Ala Leu Lys Met Glu | | | |
| | 85 | 90 | 95 |
| gaa ggg gct atg agt gaa gga gga ggg aag aat agc cac tgt cta ctg | | | 336 |
| Glu Gly Ala Met Ser Glu Gly Gly Gly Lys Asn Ser His Cys Leu Leu | | | |
| | 100 | 105 | 110 |
| acc tct acc gtg agg ccc aga gca aca gct tac gga gcc agt ggc cca | | | 384 |
| Thr Ser Thr Val Arg Pro Arg Ala Thr Ala Tyr Gly Ala Ser Gly Pro | | | |
| | 115 | 120 | 125 |
| gac cct ggc cca gcc cgt gtg gcc tcc aga cgt ctg ggg gcc gca gtt | | | 432 |
| Asp Pro Gly Pro Ala Arg Val Ala Ser Arg Arg Leu Gly Ala Ala Val | | | |
| | 130 | 135 | 140 |
| ggg ctt ctg agt gca gac acg ctg tgg cct ctc aat ggc ctt gcc agg | | | 480 |
| Gly Leu Leu Ser Ala Asp Thr Leu Trp Pro Leu Asn Gly Leu Ala Arg | | | |
| 145 | 150 | 155 | 160 |
| gca ata gat gag gaa att gag gct ctg aga gat gac tct ggg gac gac | | | 528 |
| Ala Ile Asp Glu Glu Ile Glu Ala Leu Arg Asp Asp Ser Gly Asp Asp | | | |
| | 165 | 170 | 175 |
| gac gag gct acc acc cca gcc gac aag agc gag ctg cac cac acc ctg | | | 576 |
| Asp Glu Ala Thr Thr Pro Ala Asp Lys Ser Glu Leu His His Thr Leu | | | |
| | 180 | 185 | 190 |
| aag aat ctt tcc ctg aag tta gat gac ctc agc acg tgc aat gac ctc | | | 624 |
| Lys Asn Leu Ser Leu Lys Leu Asp Asp Leu Ser Thr Cys Asn Asp Leu | | | |
| | 195 | 200 | 205 |
| atc gcc aag cac ggc gct gca ctc cag cgc tcc ctg aca gag ctg gac | | | 672 |
| Ile Ala Lys His Gly Ala Ala Leu Gln Arg Ser Leu Thr Glu Leu Asp | | | |
| 210 | 215 | 220 | |
| ggc ctc aag atc cca tct gag agt ggg gag aag ctg aag gtg gtg aat | | | 720 |
| Gly Leu Lys Ile Pro Ser Glu Ser Gly Glu Lys Leu Lys Val Val Asn | | | |
| 225 | 230 | 235 | 240 |
| gag cgg gcc acc ctc ttc cgc atc aca tcc aat gct atg atc aac ggc | | | 768 |
| Glu Arg Ala Thr Leu Phe Arg Ile Thr Ser Asn Ala Met Ile Asn Gly | | | |
| | 245 | 250 | 255 |
| gct gca gcc atc ctc acc tca tat cag gaa tgg ctt cag ccc cag ggg | | | 816 |
| Ala Ala Ala Ile Leu Thr Ser Tyr Gln Glu Trp Leu Gln Pro Gln Gly | | | |
| | 260 | 265 | 270 |
| ttt gag gga aca agg tgc tca gag gtg gtt tct gga ttg gga atc tgg | | | 864 |
| Phe Glu Gly Thr Arg Cys Ser Glu Val Val Ser Gly Leu Gly Ile Trp | | | |
| | 275 | 280 | 285 |
| aac agc aac gct gtg ttt caa ccc ccc acg cct tta cca gtg ctg tac | | | 912 |
| Asn Ser Asn Ala Val Phe Gln Pro Pro Thr Pro Leu Pro Val Leu Tyr | | | |
| 290 | 295 | 300 | |
| ctt cta gaa cac ccc ttc ctc acc ctt cag cac agc cag gat ggg gcc | | | 960 |
| Leu Leu Glu His Pro Phe Leu Thr Leu Gln His Ser Gln Asp Gly Ala | | | |

| 305 | 310 | 315 | 320 | |
|---|-----|-----|-----|------|
| tgg aga agg ccg gca gca gca gag gag acc ctg gga gtc agg gat gga | | | | 1008 |
| Trp Arg Arg Pro Ala Ala Ala Glu Glu Thr Leu Gly Val Arg Asp Gly | | | | |
| | 325 | 330 | 335 | |
| cac cag gtg agg act ggt gtg ccc atc ttc ctc ctt tgg ggt ggg aca | | | | 1056 |
| His Gln Val Arg Thr Gly Val Pro Ile Phe Leu Leu Trp Gly Gly Thr | | | | |
| | 340 | 345 | 350 | |
| gcc tgt gat gtg cat gga gct cag tgg gtg ctc cag gcc tgc agg gac | | | | 1104 |
| Ala Cys Asp Val His Gly Ala Gln Trp Val Leu Gln Ala Cys Arg Asp | | | | |
| | 355 | 360 | 365 | |
| ttc ttg gaa cta gca gag ata cac agt cgg aaa tgg cag cgg gca ctg | | | | 1152 |
| Phe Leu Glu Leu Ala Glu Ile His Ser Arg Lys Trp Gln Arg Ala Leu | | | | |
| | 370 | 375 | 380 | |
| cag tat gag cag gag cag cgc gtg cac ttg gag gaa acc att gag cag | | | | 1200 |
| Gln Tyr Glu Gln Glu Gln Arg Val His Leu Glu Glu Thr Ile Glu Gln | | | | |
| | 385 | 390 | 395 | 400 |
| ctg gcg aag cag cac aac agc ctc gag cgg gcc ttc cac agt gcc cct | | | | 1248 |
| Leu Ala Lys Gln His Asn Ser Leu Glu Arg Ala Phe His Ser Ala Pro | | | | |
| | 405 | 410 | 415 | |
| ggc cgg ccg gcc aac ccc tcc aag agc ttc att gag gga agc ctc ttg | | | | 1296 |
| Gly Arg Pro Ala Asn Pro Ser Lys Ser Phe Ile Glu Gly Ser Leu Leu | | | | |
| | 420 | 425 | 430 | |
| act ccc aaa gga gag gac agt gag gaa gat gaa gat acc gag tac ttt | | | | 1344 |
| Thr Pro Lys Gly Glu Asp Ser Glu Glu Asp Glu Asp Thr Glu Tyr Phe | | | | |
| | 435 | 440 | 445 | |
| gat gcc atg gaa gac tcc aca tcc ttc atc acc gtg atc acc gag gcc | | | | 1392 |
| Asp Ala Met Glu Asp Ser Thr Ser Phe Ile Thr Val Ile Thr Glu Ala | | | | |
| | 450 | 455 | 460 | |
| aag gaa gac agc aga aaa gct gaa ggt agc acc ggg aca agt tcc gtg | | | | 1440 |
| Lys Glu Asp Ser Arg Lys Ala Glu Gly Ser Thr Gly Thr Ser Ser Val | | | | |
| | 465 | 470 | 475 | 480 |
| gac tgg agc tca gca gac aat gta cta gat ggt gcc tcg ctc gtg ccc | | | | 1488 |
| Asp Trp Ser Ser Ala Asp Asn Val Leu Asp Gly Ala Ser Leu Val Pro | | | | |
| | 485 | 490 | 495 | |
| aag ggt tca tcc aaa gtc aag agg cga gtc cgc att ccc aac aag ccc | | | | 1536 |
| Lys Gly Ser Ser Lys Val Lys Arg Arg Val Arg Ile Pro Asn Lys Pro | | | | |
| | 500 | 505 | 510 | |
| aac tac agc ctt aac ctc tgg agc atc atg aag aac tgc atc ggc cgg | | | | 1584 |
| Asn Tyr Ser Leu Asn Leu Trp Ser Ile Met Lys Asn Cys Ile Gly Arg | | | | |
| | 515 | 520 | 525 | |
| gag ctc tcc agg atc ccc atg ccg gtg aac ttc aat gag ccc ctg tcc | | | | 1632 |
| Glu Leu Ser Arg Ile Pro Met Pro Val Asn Phe Asn Glu Pro Leu Ser | | | | |
| | 530 | 535 | 540 | |
| atg ctc cag cgg ctg aca gag gac ctg gag tac cac cac ctg ctg gac | | | | 1680 |
| Met Leu Gln Arg Leu Thr Glu Asp Leu Glu Tyr His His Leu Leu Asp | | | | |
| | 545 | 550 | 555 | 560 |
| aag gca gtg cac tgc acc agc tca gtg gag cag atg tgc ctg gtg gcc | | | | 1728 |
| Lys Ala Val His Cys Thr Ser Ser Val Glu Gln Met Cys Leu Val Ala | | | | |

| 565 | | | | | | | | 570 | | | | | 575 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|
| gcc | ttc | tct | gtg | tcc | tcc | tac | tcc | acc | aca | gtg | cac | cgc | atc | gcc | aag | 1776 | | |
| Ala | Phe | Ser | Val | Ser | Ser | Tyr | Ser | Thr | Thr | Val | His | Arg | Ile | Ala | Lys | | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | | |
| ccc | ttc | aac | ccc | atg | ctg | ggg | gag | acc | ttc | gag | ctg | gac | cgc | ctc | gac | 1824 | | |
| Pro | Phe | Asn | Pro | Met | Leu | Gly | Glu | Thr | Phe | Glu | Leu | Asp | Arg | Leu | Asp | | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | | |
| gac | atg | ggc | ctg | cgc | tcc | ctc | tgt | gag | cag | gtg | agc | cac | cac | ccc | ccc | 1872 | | |
| Asp | Met | Gly | Leu | Arg | Ser | Leu | Cys | Glu | Gln | Val | Ser | His | His | Pro | Pro | | | |
| | 610 | | | | | 615 | | | | | 620 | | | | | | | |
| tca | gct | gcg | cac | tac | gtg | ttc | tcc | aag | cat | ggc | tgg | agc | ctc | tgg | cag | 1920 | | |
| Ser | Ala | Ala | His | Tyr | Val | Phe | Ser | Lys | His | Gly | Trp | Ser | Leu | Trp | Gln | | | |
| | 625 | | | | 630 | | | | | 635 | | | | | 640 | | | |
| gag | atc | acc | atc | tcc | agc | aag | ttc | cgg | gga | aaa | tac | atc | tcc | atc | atg | 1968 | | |
| Glu | Ile | Thr | Ile | Ser | Ser | Lys | Phe | Arg | Gly | Lys | Tyr | Ile | Ser | Ile | Met | | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | | |
| ccg | cta | ggt | gcc | atc | cac | tta | gaa | ttc | cag | gcc | agt | ggg | aat | cac | tac | 2016 | | |
| Pro | Leu | Gly | Ala | Ile | His | Leu | Glu | Phe | Gln | Ala | Ser | Gly | Asn | His | Tyr | | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | | |
| gtg | tgg | agg | aag | agc | acc | tca | act | gtt | cac | aac | atc | atc | gtg | ggc | aag | 2064 | | |
| Val | Trp | Arg | Lys | Ser | Thr | Ser | Thr | Val | His | Asn | Ile | Ile | Val | Gly | Lys | | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | | |
| ctc | tgg | atc | gac | cag | tca | ggg | gac | atc | gag | att | gtg | aac | cat | aag | acc | 2112 | | |
| Leu | Trp | Ile | Asp | Gln | Ser | Gly | Asp | Ile | Glu | Ile | Val | Asn | His | Lys | Thr | | | |
| | 690 | | | | | 695 | | | | | 700 | | | | | | | |
| aat | gac | cgg | tgc | cag | ctg | aag | ttc | ctg | ccc | tac | agc | tac | ttc | tcc | aaa | 2160 | | |
| Asn | Asp | Arg | Cys | Gln | Leu | Lys | Phe | Leu | Pro | Tyr | Ser | Tyr | Phe | Ser | Lys | | | |
| | 705 | | | | 710 | | | | | 715 | | | | | 720 | | | |
| gag | gca | gcc | cgg | aag | gtg | aca | gga | gtg | gtg | agt | gac | agc | cag | ggc | aag | 2208 | | |
| Glu | Ala | Ala | Arg | Lys | Val | Thr | Gly | Val | Val | Ser | Asp | Ser | Gln | Gly | Lys | | | |
| | | | | 725 | | | | 730 | | | | | | 735 | | | | |
| gcc | cat | tac | gtg | ctg | tcc | ggc | tgc | tgg | gat | gaa | caa | atg | gag | tgc | tcc | 2256 | | |
| Ala | His | Tyr | Val | Leu | Ser | Gly | Ser | Trp | Asp | Glu | Gln | Met | Glu | Cys | Ser | | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | | |
| aag | gtc | atg | cat | agc | agt | ccc | agc | agc | ccc | agc | tct | gac | ggg | aag | cag | 2304 | | |
| Lys | Val | Met | His | Ser | Ser | Pro | Ser | Ser | Pro | Ser | Ser | Asp | Gly | Lys | Gln | | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | | |
| aag | aca | gtg | tac | cag | acc | ctg | tca | gcc | aag | ctg | ctg | tgg | aag | aag | tac | 2352 | | |
| Lys | Thr | Val | Tyr | Gln | Thr | Leu | Ser | Ala | Lys | Leu | Leu | Trp | Lys | Lys | Tyr | | | |
| | 770 | | | | | 775 | | | | | 780 | | | | | | | |
| ccg | ctg | ccg | gag | aac | gcg | gag | aac | atg | tac | tac | ttc | tca | gag | ctg | gcc | 2400 | | |
| Pro | Leu | Pro | Glu | Asn | Ala | Glu | Asn | Met | Tyr | Tyr | Phe | Ser | Glu | Leu | Ala | | | |
| | 785 | | | | 790 | | | | | 795 | | | | | 800 | | | |
| ctg | acc | ctc | aac | gag | cac | gag | gag | ggc | gta | gcg | cca | acc | gac | agc | cgc | 2448 | | |
| Leu | Thr | Leu | Asn | Glu | His | Glu | Glu | Gly | Val | Ala | Pro | Thr | Asp | Ser | Arg | | | |
| | | | | 805 | | | | 810 | | | | | | 815 | | | | |
| ctg | cgg | ccc | gac | cag | cgg | ctg | atg | gag | aag | ggc | cgt | tgg | gac | gag | gcc | 2496 | | |
| Leu | Arg | Pro | Asp | Gln | Arg | Leu | Met | Glu | Lys | Gly | Arg | Trp | Asp | Glu | Ala | | | |

| 820 | 825 | 830 | |
|---|-----|-----|------|
| aat acc gag aag cag cgg ctg gag gag aag cag cgc ctg tcg cgg cgc | | | 2544 |
| Asn Thr Glu Lys Gln Arg Leu Glu Glu Lys Gln Arg Leu Ser Arg Arg | | | |
| 835 | 840 | 845 | |
| cgg cgg ctg gag gcc tgc ggg ccg ggc agc agc tgc agc tcg gag gaa | | | 2592 |
| Arg Arg Leu Glu Ala Cys Gly Pro Gly Ser Ser Cys Ser Ser Glu Glu | | | |
| 850 | 855 | 860 | |
| gaa ggt gta aag gca ttt gac aaa att cag cca gtt tcc agg ggg cac | | | 2640 |
| Glu Gly Val Lys Ala Phe Asp Lys Ile Gln Pro Val Ser Arg Gly His | | | |
| 865 | 870 | 875 | 880 |
| agc cca cgt ttc att ctg tgt gac tgc tgc ccc ctg gcg ccc aac tca | | | 2688 |
| Ser Pro Arg Phe Ile Leu Cys Asp Cys Cys Pro Leu Ala Pro Asn Ser | | | |
| 885 | 890 | 895 | |
| ggc agg act ggc aac tac cgg aag ctc gcg agg ctt cca aag cgc atg | | | 2736 |
| Gly Arg Thr Gly Asn Tyr Arg Lys Leu Ala Arg Leu Pro Lys Arg Met | | | |
| 900 | 905 | 910 | |
| cgc agg tca cgg tac ggg cac gtg cgg cgc gcc agc aaa acc acg cag | | | 2784 |
| Arg Arg Ser Arg Tyr Gly His Val Arg Arg Ala Ser Lys Thr Thr Gln | | | |
| 915 | 920 | 925 | |
| gcg tct tgt cgc ttc cgc ctc gag cgt gtg gcg gga ttg cgg aag ccc | | | 2832 |
| Ala Ser Cys Arg Phe Arg Leu Glu Arg Val Ala Gly Leu Arg Lys Pro | | | |
| 930 | 935 | 940 | |
| tcc aca gtt cat aac cgt tgg ctg gtt atg aac cgt tca taa | | | 2874 |
| Ser Thr Val His Asn Arg Trp Leu Val Met Asn Arg Ser * | | | |
| 945 | 950 | 955 | |

<210> 695
 <211> 9530
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (169) .. (6738)

| | |
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| <400> 695 | |
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| tggaggctca ttcggccatc cgtcatctcg atcattgggt tgtacaaaga aaaaggcaag | 120 |
| ggccttggt ttagtattgc tggaggtcga gactgcattc gtggacag atg ggg att | 177 |
| | Met Gly Ile |
| | 1 |
| ttt gtc aag acc atc ttc cca aat gga tca gct gca gag gac gga aga | 225 |
| Phe Val Lys Thr Ile Phe Pro Asn Gly Ser Ala Ala Glu Asp Gly Arg | |
| 5 | 10 |
| ctt aaa gaa ggg gat gaa atc cta gat gta aat gga ata cca ata aag | 273 |
| Leu Lys Glu Gly Asp Glu Ile Leu Asp Val Asn Gly Ile Pro Ile Lys | |
| 20 | 25 |
| | 30 |
| | 35 |

| | |
|---|------|
| ggc ttg aca ttt caa gaa gcc att cat acc ttt aag caa atc cgg agt | 321 |
| Gly Leu Thr Phe Gln Glu Ala Ile His Thr Phe Lys Gln Ile Arg Ser | |
| 40 45 50 | |
| gga tta ttt gtt tta acg gta cgc aca aag ttg gtg agc ccc agc ctc | 369 |
| Gly Leu Phe Val Leu Thr Val Arg Thr Lys Leu Val Ser Pro Ser Leu | |
| 55 60 65 | |
| aca ccc tgc tcg aca ccc aca cac atg agc aga tcc gcc tcc ccg aac | 417 |
| Thr Pro Cys Ser Thr Pro Thr His Met Ser Arg Ser Ala Ser Pro Asn | |
| 70 75 80 | |
| ttc aat acc agt ggg gga gcc tcg gcg gga ggt tcc gat gaa ggc agt | 465 |
| Phe Asn Thr Ser Gly Gly Ala Ser Ala Gly Gly Ser Asp Glu Gly Ser | |
| 85 90 95 | |
| tct tca tcc ctg ggt cgg aag acc cct ggg ccc aag gac agg atc gtc | 513 |
| Ser Ser Ser Leu Gly Arg Lys Thr Pro Gly Pro Lys Asp Arg Ile Val | |
| 100 105 110 115 | |
| atg gaa gta aca ctc aac aaa gag cca aga gtt gga tta ggc att ggt | 561 |
| Met Glu Val Thr Leu Asn Lys Glu Pro Arg Val Gly Leu Gly Ile Gly | |
| 120 125 130 | |
| gcc tgc tgc ttg gct ctg gaa aac agt cct cct ggc atc tac att cac | 609 |
| Ala Cys Cys Leu Ala Leu Glu Asn Ser Pro Pro Gly Ile Tyr Ile His | |
| 135 140 145 | |
| agc ctt gct cca gga tca gtg gcc aag atg gag agc aac ctg agc cgc | 657 |
| Ser Leu Ala Pro Gly Ser Val Ala Lys Met Glu Ser Asn Leu Ser Arg | |
| 150 155 160 | |
| ggg gat caa atc ctg gaa gtg aac tcc gtc aac gtc cgc cat gct gct | 705 |
| Gly Asp Gln Ile Leu Glu Val Asn Ser Val Asn Val Arg His Ala Ala | |
| 165 170 175 | |
| tta agc aaa gtc cac gcc atc ttg agt aaa tgc cct cca gga ccc gtt | 753 |
| Leu Ser Lys Val His Ala Ile Leu Ser Lys Cys Pro Pro Gly Pro Val | |
| 180 185 190 195 | |
| cgc ctt gtc atc ggc cgg cac cct aat cca aag gac tcc ctt att tct | 801 |
| Arg Leu Val Ile Gly Arg His Pro Asn Pro Lys Asp Ser Leu Ile Ser | |
| 200 205 210 | |
| gaa tct gaa ctc tcc cag tac ttt gcc cac gat gtc cct ggc ccc ttg | 849 |
| Glu Ser Glu Leu Ser Gln Tyr Phe Ala His Asp Val Pro Gly Pro Leu | |
| 215 220 225 | |
| tca gac ttc atg gtg gcc ggt tct gag gac gag gat cac ccg gga agt | 897 |
| Ser Asp Phe Met Val Ala Gly Ser Glu Asp Glu Asp His Pro Gly Ser | |
| 230 235 240 | |
| ggc tgc agc acg tcg gag gag ggc agc ctg cct ccc agc acc tcc act | 945 |
| Gly Cys Ser Thr Ser Glu Glu Gly Ser Leu Pro Pro Ser Thr Ser Thr | |
| 245 250 255 | |
| cac aag gag cct gga aaa ccc aga gcc aac agc ctc gtg act ctt ggg | 993 |
| His Lys Glu Pro Gly Lys Pro Arg Ala Asn Ser Leu Val Thr Leu Gly | |
| 260 265 270 275 | |
| agc cat cgg gct tct ggg ctc ttc cac aag cag gtg aca gtt gcc aga | 1041 |
| Ser His Arg Ala Ser Gly Leu Phe His Lys Gln Val Thr Val Ala Arg | |
| 280 285 290 | |

| | |
|---|------|
| caa gcc agt ctc ccc gga agc cca cag gcc ctc cga aac cct ctc ctc | 1089 |
| Gln Ala Ser Leu Pro Gly Ser Pro Gln Ala Leu Arg Asn Pro Leu Leu | |
| 295 300 305 | |
| cgc cag agg aag gta ggc tgc tac gat gcc aac gat gcc agt gat gag | 1137 |
| Arg Gln Arg Lys Val Gly Cys Tyr Asp Ala Asn Asp Ala Ser Asp Glu | |
| 310 315 320 | |
| gaa gag ttt gac aga gaa ggg gac tgc att tca ctc cca ggg gcc ctc | 1185 |
| Glu Glu Phe Asp Arg Glu Gly Asp Cys Ile Ser Leu Pro Gly Ala Leu | |
| 325 330 335 | |
| ccg ggt ccc atc agg cct ctg tca gag gat gac ccg agg cgt gtc tca | 1233 |
| Pro Gly Pro Ile Arg Pro Leu Ser Glu Asp Asp Pro Arg Arg Val Ser | |
| 340 345 350 355 | |
| att tcc tct tcc aag ggc atg gac gtc cac aac caa gag gaa cga ccc | 1281 |
| Ile Ser Ser Ser Lys Gly Met Asp Val His Asn Gln Glu Glu Arg Pro | |
| 360 365 370 | |
| cgg aaa aca ctg gtg agc aag gcc atc tcg gca cct ctt ctt ggt agc | 1329 |
| Arg Lys Thr Leu Val Ser Lys Ala Ile Ser Ala Pro Leu Leu Gly Ser | |
| 375 380 385 | |
| tca gtg gac tta gag gag agt atc cca gag ggc atg gtg gat gct gcg | 1377 |
| Ser Val Asp Leu Glu Glu Ser Ile Pro Glu Gly Met Val Asp Ala Ala | |
| 390 395 400 | |
| tcc tat gca gcc aac ctc acg gac tct gca gag gcc ccc aag ggg agc | 1425 |
| Ser Tyr Ala Ala Asn Leu Thr Asp Ser Ala Glu Ala Pro Lys Gly Ser | |
| 405 410 415 | |
| cct gga agc tgg tgg aag aag gaa ctg tca gga tca agt agc gca ccc | 1473 |
| Pro Gly Ser Trp Trp Lys Lys Glu Leu Ser Gly Ser Ser Ser Ala Pro | |
| 420 425 430 435 | |
| aaa ttg gaa tac aca gtc cgt aca gac acc cag agt ccg acg aac act | 1521 |
| Lys Leu Glu Tyr Thr Val Arg Thr Asp Thr Gln Ser Pro Thr Asn Thr | |
| 440 445 450 | |
| ggg agc ccc agt tcc ccc cag cag aaa agt gaa ggc ctg ggc tcc agg | 1569 |
| Gly Ser Pro Ser Ser Pro Gln Gln Lys Ser Glu Gly Leu Gly Ser Arg | |
| 455 460 465 | |
| cac aga cca gtg gcc agg gta agc ccc cac tgc aag aga tcc gag gct | 1617 |
| His Arg Pro Val Ala Arg Val Ser Pro His Cys Lys Arg Ser Glu Ala | |
| 470 475 480 | |
| gag gcc aag ccc agt ggc tca cag aca gtg aac ctg act ggc aga gcc | 1665 |
| Glu Ala Lys Pro Ser Gly Ser Gln Thr Val Asn Leu Thr Gly Arg Ala | |
| 485 490 495 | |
| aat gat cca tgc gat ctg gac tcg aga gtc cag gcc act tct gtc aaa | 1713 |
| Asn Asp Pro Cys Asp Leu Asp Ser Arg Val Gln Ala Thr Ser Val Lys | |
| 500 505 510 515 | |
| gtg act gtc gct ggc ttt cag cca ggt gga gct gtg gag aag gaa tct | 1761 |
| Val Thr Val Ala Gly Phe Gln Pro Gly Gly Ala Val Glu Lys Glu Ser | |
| 520 525 530 | |
| ctg gga aag ctg acc act gga gat gct tgt gtc tct acc agc tgt gaa | 1809 |
| Leu Gly Lys Leu Thr Thr Gly Asp Ala Cys Val Ser Thr Ser Cys Glu | |
| 535 540 545 | |

| | |
|---|------|
| cta gcc agt gct ctg tcc cat ctg gat gcc agc cac ctc aca gag aac | 1857 |
| Leu Ala Ser Ala Leu Ser His Leu Asp Ala Ser His Leu Thr Glu Asn | |
| 550 555 560 | |
| ctg ccc aaa gct gca tca gag ctg ggg caa caa ccc atg act gaa ctg | 1905 |
| Leu Pro Lys Ala Ala Ser Glu Leu Gly Gln Gln Pro Met Thr Glu Leu | |
| 565 570 575 | |
| gac agc tcc tcg gac ctc atc tct tcc cca ggg aag aag ggg gcc gct | 1953 |
| Asp Ser Ser Ser Asp Leu Ile Ser Ser Pro Gly Lys Lys Gly Ala Ala | |
| 580 585 590 595 | |
| cat cct gac ccc agc aag acc tct gta gac aca ggg aaa gtc agt cgg | 2001 |
| His Pro Asp Pro Ser Lys Thr Ser Val Asp Thr Gly Lys Val Ser Arg | |
| 600 605 610 | |
| cca gag aat ccc agc cag cct gca tcg ccc agg gtc gcc aag tgc aag | 2049 |
| Pro Glu Asn Pro Ser Gln Pro Ala Ser Pro Arg Val Ala Lys Cys Lys | |
| 615 620 625 | |
| gcc agg tct cca gtc agg ctc ccc cat gag ggc agc ccc tcc cca ggg | 2097 |
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| gaa acc agc aca ccc cac aat acc agg agg gtg gct gcc ctc agg gga | 2193 |
| Glu Thr Ser Thr Pro His Asn Thr Arg Arg Val Ala Ala Leu Arg Gly | |
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| Ala Gly Pro Gly Ala Glu Gly Met Thr Pro Ala Gly Ala Val Leu Pro | |
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| gga gac ccc ctc aca tcc cag gag cag aga cag gga gct cca ggt aac | 2289 |
| Gly Asp Pro Leu Thr Ser Gln Glu Gln Arg Gln Gly Ala Pro Gly Asn | |
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| cac agt aag gct ctg gaa atg aca gga atc cat gca cct gaa agc tcc | 2337 |
| His Ser Lys Ala Leu Glu Met Thr Gly Ile His Ala Pro Glu Ser Ser | |
| 710 715 720 | |
| cag gag cct tcc ctg ctg gag gga gca gat tct gtg tcc tca agg gca | 2385 |
| Gln Glu Pro Ser Leu Leu Glu Gly Ala Asp Ser Val Ser Ser Arg Ala | |
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| ccg cag gcc agc ctc tcc atg ctg cca tcc act gac aac acc aaa gaa | 2433 |
| Pro Gln Ala Ser Leu Ser Met Leu Pro Ser Thr Asp Asn Thr Lys Glu | |
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| gca tgt ggc cat gtc tcg ggg cac tgc tgc ccg ggg ggg agt aga gag | 2481 |
| Ala Cys Gly His Val Ser Gly His Cys Cys Pro Gly Gly Ser Arg Glu | |
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| Ser Pro Val Thr Asp Ile Asp Ser Phe Ile Lys Glu Leu Asp Ala Ser | |
| 775 780 785 | |
| gca gca agg tct ccg tct tcc cag acg ggg gac agt ggc tct cag gag | 2577 |
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| 790 795 800 | |

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| tgc cgt gcc gaa cca gtc ccg ggg ggc cag acc tcc tcc ccg agg agg Cys Arg Ala Glu Pro Val Pro Gly Gly Gln Thr Ser Ser Pro Arg Arg 820 825 830 835 | 2673 |
| gcc tgg gct gct ggt gcc ccc gcc tac cca caa tgg gcc tcc cag cct Ala Trp Ala Ala Gly Ala Pro Ala Tyr Pro Gln Trp Ala Ser Gln Pro 840 845 850 | 2721 |
| tcg gtt tta gat tca att aat ccc gac aaa cat ttt act gtg aac aaa Ser Val Leu Asp Ser Ile Asn Pro Asp Lys His Phe Thr Val Asn Lys 855 860 865 | 2769 |
| aac ttt ctg agc aac tac tct aga aat ttt agc agt ttt cat gaa gac Asn Phe Leu Ser Asn Tyr Ser Arg Asn Phe Ser Ser Phe His Glu Asp 870 875 880 | 2817 |
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| gtt ctg tca tta aaa tac agc act ccg aga gag tcg gtg gcc agt ccc Val Leu Ser Leu Lys Tyr Ser Thr Pro Arg Glu Ser Val Ala Ser Pro 980 985 990 995 | 3153 |
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| Pro Leu Ser Lys Val Ala Arg His Phe His Ser Pro Pro Ile Ile Leu | |
| 1060 1065 1070 1075 | |
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| Ser Ser Pro Asn Met Val Asn Gly Leu Glu His Asp Leu Leu Asp Asp | |
| 1080 1085 1090 | |
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| Glu Thr Leu Asn Gln Tyr Glu Thr Ser Ile Asn Ala Ala Ala Ser Leu | |
| 1095 1100 1105 | |
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| Ser Ser Phe Ser Val Asp Val Pro Lys Asn Gly Glu Ser Val Leu Glu | |
| 1110 1115 1120 | |
| aac ctc cac atc tct gaa agt caa gac ctg gat gac ttg cta cag aaa | 3585 |
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| Ser Ser Ser Gln Lys Lys Gly Val Thr Val Pro His Ser Pro Pro Gln | |
| 1190 1195 1200 | |
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| Glu Met Leu Leu Thr Asn Gly Gln Lys Ala Lys Cys Gly Pro Lys Leu | |
| 1220 1225 1230 1235 | |
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| Ala Ala Asn Ala Val Lys Ala Gly Gly Thr Asp His Arg Lys Pro Leu | |
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| 1285 1290 1295 | |
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aaaccgataa ctgtatacaa tactctaacg tcagagggac cacagagcac cagcctgcat      240
ggaacttcct tcctcactca gcttcccacg ttgccagctg ggacagggga gatggagtaa      300
ttttgctgtg gaaagacttc acgtcttgcc gaatgaaagt cccgcctgtc tgtcacgctg      360

atg ccc gtg cag ctg tct gag cac ccg gaa tgg aat gag tct atg cac      408
Met Pro Val Gln Leu Ser Glu His Pro Glu Trp Asn Glu Ser Met His
   1             5             10             15

tcc ctc cgg atc agt gtg ggg ggc ctt cct gtg ctg gcg tcc atg acc      456
Ser Leu Arg Ile Ser Val Gly Gly Leu Pro Val Leu Ala Ser Met Thr
           20             25             30

aag gcc gcg gac ccc cgc ttc cgc ccc cgc tgg aag gtg atc ctg acg      504
Lys Ala Ala Asp Pro Arg Phe Arg Pro Arg Trp Lys Val Ile Leu Thr
           35             40             45

ttc ttt gtg ggt gcc gcc atc ctc tgg ctg ctc tgc tcc cac cgc ccg      552
Phe Phe Val Gly Ala Ala Ile Leu Trp Leu Leu Cys Ser His Arg Pro
           50             55             60

gcc ccc ggc agg ccc ccc acc cac aat gca cac aac tgg agg ctc ggc      600
Ala Pro Gly Arg Pro Pro Thr His Asn Ala His Asn Trp Arg Leu Gly
   65             70             75             80

cag gcg ccc gcc aac tgg tac aat gac acc tac ccc ctg tct ccc cca      648
Gln Ala Pro Ala Asn Trp Tyr Asn Asp Thr Tyr Pro Leu Ser Pro Pro
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caa agg aca ccg gct ggg att cgg tat cga atc gca gtt atc gca gac      696
Gln Arg Thr Pro Ala Gly Ile Arg Tyr Arg Ile Ala Val Ile Ala Asp
           100            105            110

ctg gac aca gag tca agg gcc caa gag gaa aac acc tgg ttc agt tac      744
Leu Asp Thr Glu Ser Arg Ala Gln Glu Glu Asn Thr Trp Phe Ser Tyr
           115            120            125

ctg aaa aag ggc tac ctg acc ctg tca gac agt ggg gac aag gtg gcc      792
Leu Lys Lys Gly Tyr Leu Thr Leu Ser Asp Ser Gly Asp Lys Val Ala
           130            135            140

gtg gaa tgg gac aaa gac cat ggg gtc ctg gag tcc cac ctg gcg gag      840
Val Glu Trp Asp Lys Asp His Gly Val Leu Glu Ser His Leu Ala Glu
           145            150            155            160

aag ggg aga ggc atg gag cta tcc gac ctg att gtt ttc aat ggg aaa      888
Lys Gly Arg Gly Met Glu Leu Ser Asp Leu Ile Val Phe Asn Gly Lys
           165            170            175

ctc tac tcc gtg gat gac cgg acg ggg gtc gtc tac cag atc gaa ggc      936

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| | | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Leu | Tyr | Ser | Val | Asp | Asp | Arg | Thr | Gly | Val | Val | Tyr | Gln | Ile | Glu | Gly | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| agc | aaa | gcc | gtg | ccc | tgg | gtg | att | ctg | tcc | gac | ggc | gac | ggc | acc | gtg | 984 | |
| Ser | Lys | Ala | Val | Pro | Trp | Val | Ile | Leu | Ser | Asp | Gly | Asp | Gly | Thr | Val | | |
| | | 195 | | | | | 200 | | | | | 205 | | | | | |
| gag | aaa | ggc | ttc | aag | gcc | gaa | tgg | ctg | gca | gtg | aag | gac | gag | cgt | ctg | 1032 | |
| Glu | Lys | Gly | Phe | Lys | Ala | Glu | Trp | Leu | Ala | Val | Lys | Asp | Glu | Arg | Leu | | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| tac | gtg | ggc | ggc | ctg | ggc | aag | gag | tgg | acg | acc | act | acg | ggg | gat | gtg | 1080 | |
| Tyr | Val | Gly | Gly | Leu | Gly | Lys | Glu | Trp | Thr | Thr | Thr | Thr | Gly | Asp | Val | | |
| 225 | | | | | | 230 | | | | | | 235 | | | 240 | | |
| gtg | aac | gag | aac | ccg | gag | tgg | gtg | aag | gtg | gtg | ggc | tac | aag | ggc | agc | 1128 | |
| Val | Asn | Glu | Asn | Pro | Glu | Trp | Val | Lys | Val | Val | Gly | Tyr | Lys | Gly | Ser | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| gtg | gac | cac | gag | aac | tgg | gtg | tcc | aac | tac | aac | gcc | ctg | cgg | gct | gct | 1176 | |
| Val | Asp | His | Glu | Asn | Trp | Val | Ser | Asn | Tyr | Asn | Ala | Leu | Arg | Ala | Ala | | |
| | | | 260 | | | | | 265 | | | | | 270 | | | | |
| gcc | ggc | atc | cag | ccg | cca | ggc | tac | ctc | atc | cat | gag | tct | gcc | tgc | tgg | 1224 | |
| Ala | Gly | Ile | Gln | Pro | Pro | Gly | Tyr | Leu | Ile | His | Glu | Ser | Ala | Cys | Trp | | |
| | | 275 | | | | | 280 | | | | | 285 | | | | | |
| agt | gac | acg | ctg | cag | cgc | tgg | ttc | ttc | ctg | ccg | cgc | cgc | gcc | agc | cag | 1272 | |
| Ser | Asp | Thr | Leu | Gln | Arg | Trp | Phe | Phe | Leu | Pro | Arg | Arg | Ala | Ser | Gln | | |
| | | 290 | | | | 295 | | | | | 300 | | | | | | |
| gag | cgc | tac | agc | gag | aag | gac | gac | gag | cgc | aag | ggc | gcc | aac | ctg | ctg | 1320 | |
| Glu | Arg | Tyr | Ser | Glu | Lys | Asp | Asp | Glu | Arg | Lys | Gly | Ala | Asn | Leu | Leu | | |
| 305 | | | | | 310 | | | | | 315 | | | | 320 | | | |
| ctg | agc | gcc | tcc | cct | gac | ttc | ggc | gac | atc | gct | gtg | agc | cac | gtc | ggg | 1368 | |
| Leu | Ser | Ala | Ser | Pro | Asp | Phe | Gly | Asp | Ile | Ala | Val | Ser | His | Val | Gly | | |
| | | | | 325 | | | | 330 | | | | | | 335 | | | |
| gcg | gtg | gtc | ccc | act | cac | ggc | ttc | tcg | tcc | ttc | aag | ttc | atc | ccc | aac | 1416 | |
| Ala | Val | Val | Pro | Thr | His | Gly | Phe | Ser | Ser | Phe | Lys | Phe | Ile | Pro | Asn | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| acc | gac | gac | cag | atc | att | gtg | gcc | ctc | aaa | tcc | gag | gag | gac | agc | ggc | 1464 | |
| Thr | Asp | Asp | Gln | Ile | Ile | Val | Ala | Leu | Lys | Ser | Glu | Glu | Asp | Ser | Gly | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| aga | gtc | gcc | tcc | tac | atc | atg | gcc | ttc | acg | ctg | gac | ggg | cgc | ttc | ctg | 1512 | |
| Arg | Val | Ala | Ser | Tyr | Ile | Met | Ala | Phe | Thr | Leu | Asp | Gly | Arg | Phe | Leu | | |
| | | 370 | | | | 375 | | | | | 380 | | | | | | |
| ttg | ccg | gag | acc | aag | atc | gga | agc | gtg | aaa | tac | gaa | ggc | atc | gag | ttc | 1560 | |
| Leu | Pro | Glu | Thr | Lys | Ile | Gly | Ser | Val | Lys | Tyr | Glu | Gly | Ile | Glu | Phe | | |
| 385 | | | | | 390 | | | | 395 | | | | | 400 | | | |
| att | taa | ctcaaaacgg | aaacactgag | caaggccatc | aggactcagc | ttttataaaa | | | | | | | | | | 1616 | |
| Ile | * | | | | | | | | | | | | | | | | |
| acaagaggag | tgcacttttg | ttttgttttg | ttcttttttg | aactgtgcct | gggttgagg | | | | | | | | | | | 1676 | |
| tctggacagg | gagcccagtc | ccgggcccga | tagtggtgcg | ggcactggac | ccccgggccc | | | | | | | | | | | 1736 | |
| cacggaggcc | gcggtctgaa | ctgctttcca | tgctgccatc | tggtggtgat | ttcggtcact | | | | | | | | | | | 1796 | |

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 ccagggtcacc cccttttctt cctactctgt gcctggagca tcatgtccac ccctgcagat 2036
 ccttggaataa gaaaatgttt atgttgcagg gtattgcatg gtcacgagtg agggcaggcc 2096
 cctggggaca catctgcccc cagctgcaca ggccagggca caggcacatc tggttggttct 2156
 caggcctcag ataaaacat ctcgcacatca tatggccagt gaccgctttc tcccttcaag 2216
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 tccttcctat aaagg 2291

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 ttcttctctg ggggtgctagg ctttgcagtt tatgggaatg aggccttgca cttcatttgc 120
 gatccagaca aaagagaagt aaacctcttc tgttacaatc agttcaggcc aatcactcca 180
 caactctgcc ctccccttac ttgccaaggt tctagcccag tcttagaggg tgatgtcaga 240
 tccttcagaa actgggtctga g atg aat gga gaa gaa gaa tac gga agc gga 291
 Met Asn Gly Glu Glu Glu Tyr Gly Ser Gly
 1 5 10
 agt gcc ggt gga gcg cga gta gga agt ggt gag ttc gga gta gag atg 339
 Ser Ala Gly Gly Ala Arg Val Gly Ser Gly Glu Phe Gly Val Glu Met
 15 20 25
 gcc gcg ctt gca ccg ctg ccc ccg ctc ccc gca cag ttc aag agc ata 387
 Ala Ala Leu Ala Pro Leu Pro Pro Leu Pro Ala Gln Phe Lys Ser Ile
 30 35 40
 cag cat cat ctg agg acg gct cag gag cat gac aag cga gac cct gtg 435
 Gln His His Leu Arg Thr Ala Gln Glu His Asp Lys Arg Asp Pro Val
 45 50 55
 gtg gct tat tac tgt cgt tta tac gca atg cag act gga atg aag atc 483
 Val Ala Tyr Tyr Cys Arg Leu Tyr Ala Met Gln Thr Gly Met Lys Ile
 60 65 70
 gat agt aaa act cct gaa tgt cgc aaa ttt tta tca aag tta atg gat 531
 Asp Ser Lys Thr Pro Glu Cys Arg Lys Phe Leu Ser Lys Leu Met Asp
 75 80 85 90

| | |
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| cag tta gaa gct cta aag aag cag ttg ggt gat aat gaa gct att act | 579 |
| Gln Leu Glu Ala Leu Lys Lys Gln Leu Gly Asp Asn Glu Ala Ile Thr | |
| 95 100 105 | |
| caa gaa ata gtg ggc tgt gcc cat ttg gag aat tat gct ttg aaa atg | 627 |
| Gln Glu Ile Val Gly Cys Ala His Leu Glu Asn Tyr Ala Leu Lys Met | |
| 110 115 120 | |
| ttt ttg tat gca gac aat gaa gat cgt gct gga cga ttt cac aaa aac | 675 |
| Phe Leu Tyr Ala Asp Asn Glu Asp Arg Ala Gly Arg Phe His Lys Asn | |
| 125 130 135 | |
| atg atc aag tcc ttc tat act gca agt ctt ttg ata gat gtc ata aca | 723 |
| Met Ile Lys Ser Phe Tyr Thr Ala Ser Leu Leu Ile Asp Val Ile Thr | |
| 140 145 150 | |
| gta ttt gga gaa ctc act gat gaa aat gtg aaa cac agg aag tat gcc | 771 |
| Val Phe Gly Glu Leu Thr Asp Glu Asn Val Lys His Arg Lys Tyr Ala | |
| 155 160 165 170 | |
| aga tgg aag gca aca tac atc cat aat tgt tta aag aat ggg gag act | 819 |
| Arg Trp Lys Ala Thr Tyr Ile His Asn Cys Leu Lys Asn Gly Glu Thr | |
| 175 180 185 | |
| cct caa gca ggc cct gtt gga att gaa gaa gat aat gat att gaa gaa | 867 |
| Pro Gln Ala Gly Pro Val Gly Ile Glu Glu Asp Asn Asp Ile Glu Glu | |
| 190 195 200 | |
| aat gaa gat gct gga gca gcc tct ctg ccc act cag cca act cag cca | 915 |
| Asn Glu Asp Ala Gly Ala Ala Ser Leu Pro Thr Gln Pro Thr Gln Pro | |
| 205 210 215 | |
| tca tca tct tca act tat gac cca agc aac atg cca tca ggc aac tat | 963 |
| Ser Ser Ser Ser Thr Tyr Asp Pro Ser Asn Met Pro Ser Gly Asn Tyr | |
| 220 225 230 | |
| act gga ata cag att cct ccg ggt gca cac gct cca gct aat aca cca | 1011 |
| Thr Gly Ile Gln Ile Pro Pro Gly Ala His Ala Pro Ala Asn Thr Pro | |
| 235 240 245 250 | |
| gca gaa gtg cct cac agc aca ggt gta gca agt aat act atc caa cct | 1059 |
| Ala Glu Val Pro His Ser Thr Gly Val Ala Ser Asn Thr Ile Gln Pro | |
| 255 260 265 | |
| act cca cag act ata cct gcc att gat ccc gca ctt ttc aat aca att | 1107 |
| Thr Pro Gln Thr Ile Pro Ala Ile Asp Pro Ala Leu Phe Asn Thr Ile | |
| 270 275 280 | |
| tcc cag ggg gat gtt cgt cta acc cca gaa gac ttt gct aga gct cag | 1155 |
| Ser Gln Gly Asp Val Arg Leu Thr Pro Glu Asp Phe Ala Arg Ala Gln | |
| 285 290 295 | |
| aag tac tgc aaa tat gct ggc agt gct ttg cag tat gaa gat gta agc | 1203 |
| Lys Tyr Cys Lys Tyr Ala Gly Ser Ala Leu Gln Tyr Glu Asp Val Ser | |
| 300 305 310 | |
| act gct gtc cag aat cta caa aag gct ctc aag tta ctg acg aca ggc | 1251 |
| Thr Ala Val Gln Asn Leu Gln Lys Ala Leu Lys Leu Leu Thr Thr Gly | |
| 315 320 325 330 | |
| aga gaa tga agccttt gtatgacaga cccatgtatt tttggcatga ggaactaaca | 1307 |
| Arg Glu * | |

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gtccattact ctatcttcag cctatcagga tcacagtttt aaggaagact tggttttggt 1367
gaatatgaca atgaaatctg tgtgtatcag atttttattg aagcattcat cagcagcctc 1427
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tagcaagacc ctaaaaatgt ccattgaacc ctgcttcaaa aaatgaaaac acacctctat 1547
aaaatgtgta ctgggaataa gctttgtatt tacatacatt aggggaattt ttttaaaatc 1607
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ctttacctta tctgttaaag cgtaagatga attggtattt gcttcattagg cagtttgact 1967
gcatgtatta gagaatgaaa agaagatatt tgtagtaatg cctggaaact tgggtgcttta 2027
aattaaggta ctctctgct gctgtagaat ggattccaca cagtggatag ctatgggtga 2087
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gctaattcaa cttaaaaaaa aaaaa 2232

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 <222> (23) .. (964)

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          1              5              10

tgg cag cag tgg cgg cga tgt ttg tcg gct cgg gat ggg tcc agg agg 100
Trp Gln Gln Trp Arg Arg Cys Leu Ser Ala Arg Asp Gly Ser Arg Arg
          15              20              25

tta ctc ctt ctt ctt ttg ttg ggg tct ggg cag ggg cca cag caa gtc 148
Leu Leu Leu Leu Leu Leu Leu Gly Ser Gly Gln Gly Pro Gln Gln Val
          30              35              40

ggg gcg ggt caa acg ttc gag tac ttg aaa cgg gag cac tcg ctg tcg 196
Gly Ala Gly Gln Thr Phe Glu Tyr Leu Lys Arg Glu His Ser Leu Ser
          45              50              55

aag ccc tac cag ggt gag gcg ccc agg cca tgt ttc ctg aga gac tgg 244
Lys Pro Tyr Gln Gly Glu Ala Pro Arg Pro Cys Phe Leu Arg Asp Trp
          60              65              70

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| | |
|---|------|
| gag ttg cag gtg cac ttc aaa atc cat gga caa gga aag aag aat ctg | 292 |
| Glu Leu Gln Val His Phe Lys Ile His Gly Gln Gly Lys Lys Asn Leu | |
| 75 80 85 90 | |
| cat ggg gat ggc ttg gca atc tgg tac aca aag gat cgg atg cag cca | 340 |
| His Gly Asp Gly Leu Ala Ile Trp Tyr Thr Lys Asp Arg Met Gln Pro | |
| 95 100 105 | |
| ggg cct gtg ttt gga aac atg gac aaa ttt gtg ggg ctg gga gta ttt | 388 |
| Gly Pro Val Phe Gly Asn Met Asp Lys Phe Val Gly Leu Gly Val Phe | |
| 110 115 120 | |
| gta gac acc tac ccc aat gag gag aag cag caa gag cgg gta ttc ccc | 436 |
| Val Asp Thr Tyr Pro Asn Glu Glu Lys Gln Gln Glu Arg Val Phe Pro | |
| 125 130 135 | |
| tac atc tca gcc atg gtg aac aac ggc tcc ctc agc tat gat cat gag | 484 |
| Tyr Ile Ser Ala Met Val Asn Asn Gly Ser Leu Ser Tyr Asp His Glu | |
| 140 145 150 | |
| cgg gat ggg cgg cct aca gag ctg gga ggc tgc aca gcc att gtc cgc | 532 |
| Arg Asp Gly Arg Pro Thr Glu Leu Gly Gly Cys Thr Ala Ile Val Arg | |
| 155 160 165 170 | |
| aat ctt cat tac gac acc ttc ctg gtg att cgc tac gtc aag agg cat | 580 |
| Asn Leu His Tyr Asp Thr Phe Leu Val Ile Arg Tyr Val Lys Arg His | |
| 175 180 185 | |
| ttg acg ata atg atg gat att gat ggc aag cat gag tgg agg gac tgc | 628 |
| Leu Thr Ile Met Met Asp Ile Asp Gly Lys His Glu Trp Arg Asp Cys | |
| 190 195 200 | |
| att gaa gtg ccc gga gtc cgc ctg ccc cgc ggc tac tac ttc ggc acc | 676 |
| Ile Glu Val Pro Gly Val Arg Leu Pro Arg Gly Tyr Tyr Phe Gly Thr | |
| 205 210 215 | |
| tcc tcc atc act ggg gat ctc tca gat aat cat gat gtc att tcc ttg | 724 |
| Ser Ser Ile Thr Gly Asp Leu Ser Asp Asn His Asp Val Ile Ser Leu | |
| 220 225 230 | |
| aag ttg ttt gaa ctg aca gtg gag aga acc cca gaa gag gaa aag ctc | 772 |
| Lys Leu Phe Glu Leu Thr Val Glu Arg Thr Pro Glu Glu Glu Lys Leu | |
| 235 240 245 250 | |
| cat cga gat gtg ttc ttg ccc tca gtg gac aat atg aag ctg cct gag | 820 |
| His Arg Asp Val Phe Leu Pro Ser Val Asp Asn Met Lys Leu Pro Glu | |
| 255 260 265 | |
| atg aca gct cca ctg ccg ccc ctg agt ggc ctg gcc ctc ttc ctc atc | 868 |
| Met Thr Ala Pro Leu Pro Pro Leu Ser Gly Leu Ala Leu Phe Leu Ile | |
| 270 275 280 | |
| gtc ttt ttc tcc ctg gtg ttt tct gta ttt gcc ata gtc att ggt atc | 916 |
| Val Phe Phe Ser Leu Val Phe Ser Val Phe Ala Ile Val Ile Gly Ile | |
| 285 290 295 | |
| ata ctc tac aac aaa tgg cag gaa cag agc cga aag cgc ttc tac tga | 964 |
| Ile Leu Tyr Asn Lys Trp Gln Glu Gln Ser Arg Lys Arg Phe Tyr * | |
| 300 305 310 | |
| gccctcctgc tgccaccact tttgtgactg tcacccatga ggtatggaag gagcaggcac | 1024 |
| tggcctgagc atgcagcctg gagagtgttc ttgtctctag cagctgggtg gggactatat | 1084 |

tctgtcactg gagttttgaa tgcagggacc ccgcattccc atggttgtgc atggggacat 1144
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 tgcagtcctt ccatgtggga gcagaggtgt gaagagaatt tacgtggttg tgatgccaaa 1264
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 Met Gln Pro Pro Pro Pro Gly Pro Leu Gly Asp Cys Leu Arg Asp Trp
 1 5 10 15
 gag gat cta cag cag gac ttc cag aac atc cag gag acc cat cgg ctc 152
 Glu Asp Leu Gln Gln Asp Phe Gln Asn Ile Gln Glu Thr His Arg Leu
 20 25 30
 tac cgc ctg aag ctg gag gag ctg acc aaa ctt cag aac aat tgc acc 200
 Tyr Arg Leu Lys Leu Glu Glu Leu Thr Lys Leu Gln Asn Asn Cys Thr
 35 40 45
 agc tcc atc acg cgg cag aag aag cgg ctc cag gag ctg gcc ctc gcc 248
 Ser Ser Ile Thr Arg Gln Lys Lys Arg Leu Gln Glu Leu Ala Leu Ala
 50 55 60
 ctg aag aaa tgc aaa ccc tcc ctc cca gca gag gcc gag ggg gcc gca 296
 Leu Lys Lys Cys Lys Pro Ser Leu Pro Ala Glu Ala Glu Gly Ala Ala
 65 70 75 80
 cag gag ctg gag aac cag atg aaa gag cgc caa ggc ctc ttc ttt gac 344
 Gln Glu Leu Glu Asn Gln Met Lys Glu Arg Gln Gly Leu Phe Phe Asp
 85 90 95
 atg gag gcc tat ttg cct aag aag aat gga ttg tac ctg agc ctg gtt 392
 Met Glu Ala Tyr Leu Pro Lys Lys Asn Gly Leu Tyr Leu Ser Leu Val
 100 105 110
 ctg ggg aac gtc aac gtc acg ctc ctg agc aag cag gct aag ttt gcc 440
 Leu Gly Asn Val Asn Val Thr Leu Leu Ser Lys Gln Ala Lys Phe Ala
 115 120 125
 tac aag gac gag tat gag aag ttc aag ctc tac ctc acc atc atc ctc 488
 Tyr Lys Asp Glu Tyr Glu Lys Phe Lys Leu Tyr Leu Thr Ile Ile Leu
 130 135 140
 atc ctc atc tcc ttc act tgc cgc ttc ctg ctc aac tcc agg gtg aca 536
 Ile Leu Ile Ser Phe Thr Cys Arg Phe Leu Leu Asn Ser Arg Val Thr
 145 150 155 160

| | |
|--|------|
| gat gct gcc ttc aac ttc ctg ctg gtc tgg tac tac tgc acc ctg acc | 584 |
| Asp Ala Ala Phe Asn Phe Leu Leu Val Trp Tyr Tyr Cys Thr Leu Thr | |
| 165 170 175 | |
| atc cgg gag agc atc ctc atc aac aac ggc tcc cgg atc aaa ggc tgg | 632 |
| Ile Arg Glu Ser Ile Leu Ile Asn Asn Gly Ser Arg Ile Lys Gly Trp | |
| 180 185 190 | |
| tgg gtg ttc cat cac tac gtg tcc acc ttc ctg tgc gga gtc atg ctg | 680 |
| Trp Val Phe His His Tyr Val Ser Thr Phe Leu Ser Gly Val Met Leu | |
| 195 200 205 | |
| acg tgg ccc gac ggt ctc atg tac cag aaa ttc cgg aac caa ttc ctc | 728 |
| Thr Trp Pro Asp Gly Leu Met Tyr Gln Lys Phe Arg Asn Gln Phe Leu | |
| 210 215 220 | |
| tcc ttt tcc atg tac cag agc ttc gtg cag ttt ctc cag tac tac tac | 776 |
| Ser Phe Ser Met Tyr Gln Ser Phe Val Gln Phe Leu Gln Tyr Tyr Tyr | |
| 225 230 235 240 | |
| cag agc ggc tgc ctc tac cgc ctg cgg gcg ctg ggc gag cgg cac acc | 824 |
| Gln Ser Gly Cys Leu Tyr Arg Leu Arg Ala Leu Gly Glu Arg His Thr | |
| 245 250 255 | |
| atg gac ctc act gtg gag ggc ttc cag tcc tgg atg tgg cgg ggc ctc | 872 |
| Met Asp Leu Thr Val Glu Gly Phe Gln Ser Trp Met Trp Arg Gly Leu | |
| 260 265 270 | |
| acc ttc ctg ctg cct ttt ctt ttc ttt gga cac ttc tgg cag ctt ttt | 920 |
| Thr Phe Leu Leu Pro Phe Leu Phe Phe Gly His Phe Trp Gln Leu Phe | |
| 275 280 285 | |
| aac gcg ctg acg ttg ttc aac ctg gcc cag gac cct cag tgc aag gag | 968 |
| Asn Ala Leu Thr Leu Phe Asn Leu Ala Gln Asp Pro Gln Cys Lys Glu | |
| 290 295 300 | |
| tgg cag gtg ctt atg tgc ggc ttt ccc ttc ctc ctc ctt ttc ctc ggc | 1016 |
| Trp Gln Val Leu Met Cys Gly Phe Pro Phe Leu Leu Leu Phe Leu Gly | |
| 305 310 315 320 | |
| aat ttc ttc acc acc ctg agg gtt gtg cac cag ctc cat cac gcg gca | 1064 |
| Asn Phe Phe Thr Thr Leu Arg Val Val His Gln Leu His His Ala Ala | |
| 325 330 335 | |
| gaa gaa gcg gct cca gga gct ggg cct tcc cct gaa gaa atg caa acc | 1112 |
| Glu Glu Ala Ala Pro Gly Ala Gly Pro Ser Pro Glu Glu Met Gln Thr | |
| 340 345 350 | |
| ctc cct ccc agc aga ggc cga ggg ggc cgc aca gga gct gga gaa cca | 1160 |
| Leu Pro Pro Ser Arg Gly Arg Gly Gly Arg Thr Gly Ala Gly Glu Pro | |
| 355 360 365 | |
| gat gaa aga gcg cca agg cct ctt ctt tga c atggaggcct atttgccctaa | 1211 |
| Asp Glu Arg Ala Pro Arg Pro Leu Leu * | |
| 370 375 | |
| gaagaatgga ttgtacctga gcctggttct ggggaacgtc aacgtcacgc tcctgagcaa | 1271 |
| gcaggctaag tttgcctaca aggacgagta tgagaagttc aagctctacc tcaccatcat | 1331 |
| cctcatcctc atctccttca cttgccgctt cctgctcaac tccagggtga cagatgctgc | 1391 |
| cttcaacttc ctgctggtct ggtactactg caccctgacc atccgggaga gcatacctcat | 1451 |

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caacaacggc tcccgggtggg cagggcgggc cctgagggag gggagcatgg aatgggggtgc 1511
caggaccctc cggaagcag gaacaggcgc tgggggtgat ggtggctctc tgctccagga 1571
tcaaaggctg gtgggtgttc catcactacg tgtccacctt cctgtcggga gtcattgctga 1631
cgtggcccga cggtctcatg taccagaaat tccggaacca attcctctcc ttttccatgt 1691
accagagctt cgtcgagttt ctccagtact actaccagag cggctgcctc taccgcctgc 1751
ggcgctgggc gagcggcaca ccatggacct cactgtggag ggcttccagt cctggatgtg 1811
gcggggcctc accttcctgc tgccttttct tttctttgga cacttctggc agctttttaa 1871
cgcgctgacg ttgttcaacc tggcccagga ccctcagtgc aaggagtggc aggtgcttat 1931
gtgcggcttt cccttccttc tccttttctt cggcaatttc ttcaccaccc tgtgtgttgt 1991
gcaccacaag tttcacagtc agcggcacgg gagcaagaag gattgaggct gggccttccc 2051
ctgccggccc agaggggctt ctgtcctgtg tgttgtggga ggggatggga ggcgcccctc 2111
gagtgtgcgt gtatcagggg gtctcttcta ttctcccttg ggttttatgg gcgctgtggg 2171
ccctgaagga agacctggcc cagtgccttc aataaagaga ggcccagagg tggaaaaaaa 2231
aaaaa 2236

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<210> 700
 <211> 963
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (214) .. (798)

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<400> 700
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cctctaagga ggagcactga ctgaagacag aaaaattgat gaactgaaga agacatggtc 120
cattatgcct tacaaactta cacagtgcct tgggaattcc aaagtactca gtggagagag 180
gtgtttcagg agccgtagag ccagatcgtc atc atg tct gca ttg tgg ctg ctg 234
                               Met Ser Ala Leu Trp Leu Leu
                               1               5

ctg ggc ctc ctt gcc ctg atg gac ttg tct gaa agc agc aac tgg gga 282
Leu Gly Leu Leu Ala Leu Met Asp Leu Ser Glu Ser Ser Asn Trp Gly
      10              15              20

tgc tat gga aac atc caa agc ctg gac acc cct gga gca tct tgt ggg 330
Cys Tyr Gly Asn Ile Gln Ser Leu Asp Thr Pro Gly Ala Ser Cys Gly
      25              30              35

att gga aga cgt cac ggc ctg aac tac tgt gga gtt cgt gct tct gaa 378
Ile Gly Arg Arg His Gly Leu Asn Tyr Cys Gly Val Arg Ala Ser Glu
      40              45              50              55

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agg ctg gct gaa ata gac atg cca tac ctc ctg aaa tat caa ccc atg      426
Arg Leu Ala Glu Ile Asp Met Pro Tyr Leu Leu Lys Tyr Gln Pro Met
              60                      65                      70

atg caa acc att ggc caa aag tac tgc atg gat cct gcc gtg atc gct      474
Met Gln Thr Ile Gly Gln Lys Tyr Cys Met Asp Pro Ala Val Ile Ala
              75                      80                      85

ggg gtc ttg tcc agg aag tct ccc ggt gac aaa att ctg gtc aac atg      522
Gly Val Leu Ser Arg Lys Ser Pro Gly Asp Lys Ile Leu Val Asn Met
              90                      95                      100

ggc gat agg act agc atg gtg cag gac cct ggc tct caa gct ccc aca      570
Gly Asp Arg Thr Ser Met Val Gln Asp Pro Gly Ser Gln Ala Pro Thr
              105                      110                      115

tcc tgg att agt gag tct cag gtt tcc cag aca act gaa gtt ctg act      618
Ser Trp Ile Ser Glu Ser Gln Val Ser Gln Thr Thr Glu Val Leu Thr
              120                      125                      130                      135

act aga atc aaa gaa atc cag agg agg ttt cca acc tgg acc cct gac      666
Thr Arg Ile Lys Glu Ile Gln Arg Arg Phe Pro Thr Trp Thr Pro Asp
              140                      145                      150

cag tac ctg aga ggt gga ctc tgt gcc tac agt ggg ggt gct ggc tat      714
Gln Tyr Leu Arg Gly Gly Leu Cys Ala Tyr Ser Gly Gly Ala Gly Tyr
              155                      160                      165

gtc cga agc agc cag gac ctg agc tgt gac ttc tgc aat gat gtc ctt      762
Val Arg Ser Ser Gln Asp Leu Ser Cys Asp Phe Cys Asn Asp Val Leu
              170                      175                      180

gca cga gcc aag tac ctc aag aga cat ggc ttc taa catc tcagatgaaa      812
Ala Arg Ala Lys Tyr Leu Lys Arg His Gly Phe *
              185                      190                      195

cccaagacca tgatcacata tgcagcctca aatggttacac agataaaaact agccaagggc      872

acctgtaact gggaatctga gtttgaccta aaagtcatta aaataacatg aatcacatta      932

aaggaagaat tttgacctgc aaaaaaaaaa a                                  963

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<210> 701
 <211> 975
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (28)..(714)

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<400> 701
ggactaattt gtgccaccta ctgggga      atg aag atc aag ccg ggt ttc atg      51
Met Lys Ile Lys Pro Gly Phe Met
              1                      5

ggg aag gcc act cca ccc tat gac gtc cag ttt cat atg gag gcc tca      99
Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Phe His Met Glu Ala Ser
              10                      15                      20

gtt gaa aac tgc att att gtg agc atg aac acc gct gac cct ggc agc      147

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| | | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|-------------|------------|-----|-----|-----|-----|-----|-----|-----|-----------|-----|-----|--|-----|
| Val | Glu | Asn | Cys | Ile | Ile | Val | Ser | Met | Asn | Thr | Ala | Asp | Pro | Gly | Ser | | |
| 25 | | | | | 30 | | | | | 35 | | | | | 40 | | |
| cag | ggc | atc | aca | cac | agc | ctc | ttg | cta | cag | gtc | att | gat | gac | aag | ggc | | 195 |
| Gln | Gly | Ile | Thr | His | Ser | Leu | Leu | Leu | Gln | Val | Ile | Asp | Asp | Lys | Gly | | |
| | | | | 45 | | | | | 50 | | | | | 55 | | | |
| agc | atc | ctg | cca | cct | aac | aca | gaa | gga | aac | att | ggc | atc | aga | atc | aaa | | 243 |
| Ser | Ile | Leu | Pro | Pro | Asn | Thr | Glu | Gly | Asn | Ile | Gly | Ile | Arg | Ile | Lys | | |
| | | | 60 | | | | | 65 | | | | | 70 | | | | |
| cct | gtc | agg | cct | gtg | agc | ctc | ttc | atg | tgc | tat | gag | ggg | gac | cca | gag | | 291 |
| Pro | Val | Arg | Pro | Val | Ser | Leu | Phe | Met | Cys | Tyr | Glu | Gly | Asp | Pro | Glu | | |
| | | 75 | | | | | 80 | | | | | 85 | | | | | |
| aag | aca | gct | aaa | gtg | gaa | tgt | ggg | gac | ttc | tac | aac | act | ggg | gac | aga | | 339 |
| Lys | Thr | Ala | Lys | Val | Glu | Cys | Gly | Asp | Phe | Tyr | Asn | Thr | Gly | Asp | Arg | | |
| | 90 | | | | | 95 | | | | | 100 | | | | | | |
| gga | aag | atg | gat | gaa | gag | ggc | tac | att | tgt | ttc | ctg | ggg | agg | agt | gat | | 387 |
| Gly | Lys | Met | Asp | Glu | Glu | Gly | Tyr | Ile | Cys | Phe | Leu | Gly | Arg | Ser | Asp | | |
| 105 | | | | | 110 | | | | 115 | | | | | | 120 | | |
| gac | atc | att | aat | gcc | tct | ggg | tat | cgc | atc | ggg | cct | gca | gag | gtt | gaa | | 435 |
| Asp | Ile | Ile | Asn | Ala | Ser | Gly | Tyr | Arg | Ile | Gly | Pro | Ala | Glu | Val | Glu | | |
| | | | | 125 | | | | | 130 | | | | | 135 | | | |
| agc | gct | ttg | gtg | gag | cac | cca | gcg | gtg | gcg | gag | tca | gcc | gtg | gtg | ggc | | 483 |
| Ser | Ala | Leu | Val | Glu | His | Pro | Ala | Val | Ala | Glu | Ser | Ala | Val | Val | Gly | | |
| | | | 140 | | | | | 145 | | | | | 150 | | | | |
| agc | cca | gac | ccg | att | cga | ggg | gag | gtg | gtg | aag | gcc | ttt | att | gtc | ctg | | 531 |
| Ser | Pro | Asp | Pro | Ile | Arg | Gly | Glu | Val | Val | Lys | Ala | Phe | Ile | Val | Leu | | |
| | | 155 | | | | | 160 | | | | | 165 | | | | | |
| acc | cca | cag | ttc | ctg | tcc | cat | gac | aag | gat | cag | ctg | acc | aag | gaa | ctg | | 579 |
| Thr | Pro | Gln | Phe | Leu | Ser | His | Asp | Lys | Asp | Gln | Leu | Thr | Lys | Glu | Leu | | |
| | | 170 | | | | 175 | | | | | 180 | | | | | | |
| cag | cag | cat | gtc | aag | tca | gtg | aca | gcc | cca | tac | aag | tac | cca | agg | aag | | 627 |
| Gln | Gln | His | Val | Lys | Ser | Val | Thr | Ala | Pro | Tyr | Lys | Tyr | Pro | Arg | Lys | | |
| 185 | | | | | 190 | | | | | 195 | | | | | 200 | | |
| gtg | gag | ttt | gtc | tca | gag | ctg | cca | aaa | acc | atc | act | ggc | aag | att | gaa | | 675 |
| Val | Glu | Phe | Val | Ser | Glu | Leu | Pro | Lys | Thr | Ile | Thr | Gly | Lys | Ile | Glu | | |
| | | | | 205 | | | | 210 | | | | | 215 | | | | |
| cgg | aag | gaa | ctt | cgg | aaa | aag | gag | act | ggg | cag | atg | taa | tcggcagtg | | | | 724 |
| Arg | Lys | Glu | Leu | Arg | Lys | Lys | Glu | Thr | Gly | Gln | Met | * | | | | | |
| | | 220 | | | | | 225 | | | | | | | | | | |
| actcagaacg | cactgcacac | ctgaggcaaa | tccctggcca | ctttagtcctc | cccactatgg | | | | | | | | | | | | 784 |
| tgaggacgag | ggtggggcat | tgagagtgtt | gatttgggaa | agtatcagga | gtgccatgat | | | | | | | | | | | | 844 |
| tccaatgttt | tccttctttt | aaattaaatt | cagttgctct | gcttctcca | agtcctctgt | | | | | | | | | | | | 904 |
| atcttttagaa | tttcccaggt | gagcactcat | aacgcaagta | ataaaatact | gatatcaaca | | | | | | | | | | | | 964 |
| aaaaaaaaa | a | | | | | | | | | | | | | | | | 975 |

<210> 702
 <211> 1075
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (224) .. (811)

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 aatgaccaaa agcatcaggt tccctgccct ggagcactgc tatactggcg gggaggtcgt 120
 gttgcccgaag gatcaggagg agtggaagaa acggacgggc cttctgctct acgagaacta 180
 tgggcagtcg gaaacgggac taattttgtgc cacctactgg gga atg aag atc aag 235
 Met Lys Ile Lys
 1
 ccg ggt ttc atg ggg aag gcc act cca ccc tat gac gtc cag gtc att 283
 Pro Gly Phe Met Gly Lys Ala Thr Pro Pro Tyr Asp Val Gln Val Ile
 5 10 15 20
 gat gac aag ggc agc atc ctg cca cct aac aca gaa gga aac att ggc 331
 Asp Asp Lys Gly Ser Ile Leu Pro Pro Asn Thr Glu Gly Asn Ile Gly
 25 30 35
 atc aga atc aaa cct gtc agg cct gtg agc ctc ttc atg tgc tat gag 379
 Ile Arg Ile Lys Pro Val Arg Pro Val Ser Leu Phe Met Cys Tyr Glu
 40 45 50
 ggt gac cca gag aag aca gct aaa gtg gaa tgt ggg gac ttc tac aac 427
 Gly Asp Pro Glu Lys Thr Ala Lys Val Glu Cys Gly Asp Phe Tyr Asn
 55 60 65
 act ggg gac aga gga aag atg gat gaa gag ggc tac att tgt ttc ctg 475
 Thr Gly Asp Arg Gly Lys Met Asp Glu Glu Gly Tyr Ile Cys Phe Leu
 70 75 80
 ggg agg agt gat gac atc att aat gcc tct ggg tat cgc atc ggg cct 523
 Gly Arg Ser Asp Asp Ile Ile Asn Ala Ser Gly Tyr Arg Ile Gly Pro
 85 90 95 100
 gca gag gtt gaa agc gct ttg gtg gag cac cca gcg gtg gcg gag tca 571
 Ala Glu Val Glu Ser Ala Leu Val Glu His Pro Ala Val Ala Glu Ser
 105 110 115
 gcc gtg gtg ggc agc cca gac ccg att cga ggg gag gtg gtg aag gcc 619
 Ala Val Val Gly Ser Pro Asp Pro Ile Arg Gly Glu Val Val Lys Ala
 120 125 130
 ttt att gtc ctg acc cca cag ttc ctg tcc cat gac aag gat cag ctg 667
 Phe Ile Val Leu Thr Pro Gln Phe Leu Ser His Asp Lys Asp Gln Leu
 135 140 145
 acc aag gaa ctg cag cag cat gtc aag tca gtg aca gcc cca tac aag 715
 Thr Lys Glu Leu Gln Gln His Val Lys Ser Val Thr Ala Pro Tyr Lys
 150 155 160
 tac cca agg aag gtg gag ttt gtc tca gag ctg cca aaa acc atc act 763
 Tyr Pro Arg Lys Val Glu Phe Val Ser Glu Leu Pro Lys Thr Ile Thr
 165 170 175 180

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<210> 703
<211> 2338
<212> DNA
<213> Homo sapiens
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<220>
<221> CDS
<222> (104)..(2212)
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<400> 703

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ctcccagggg ccgagtcttc cggagtcagc agagagcctg gatggatcac aggaggataa      60
gcctcggggc tcatgtgcgg agcccacttt tactgatacg gga  atg gtg gct cac      115
               Met Val Ala His
               1
```

ata aac aac agc cgg ctc aag gcc aag ggc gtg ggc cag cac gac aac 163
Ile Asn Asn Ser Arg Leu Lys Ala Lys Gly Val Gly Gln His Asp Asn
5 10 15 20

gcc cag aac ttt ggt aac cag agc ttt gag gag ctg cga gca gcc tgt 211
Ala Gln Asn Phe Gly Asn Gln Ser Phe Glu Glu Leu Arg Ala Ala Cys
25 30 35

cta aga aag ggg gag ctc ttc gag gac ccc tta ttc cct gct gaa ccc 259
Leu Arg Lys Gly Glu Leu Phe Glu Asp Pro Leu Phe Pro Ala Glu Pro
40 45 50

agc tca ctg ggc ttc aag gac ctg ggc ccc aac tcc aaa aat gtg cag 307
Ser Ser Leu Gly Phe Lys Asp Leu Gly Pro Asn Ser Lys Asn Val Gln
55 60 65

aac atc tcc tgg cag cgg ccc aag gat atc ata aac aac cct cta ttc 355
Asn Ile Ser Trp Gln Arg Pro Lys Asp Ile Ile Asn Asn Pro Leu Phe
70 75 80

atc atg gat ggg att tct cca aca gac atc tgc cag ggg atc ctc ggg 403
Ile Met Asp Gly Ile Ser Pro Thr Asp Ile Cys Gln Gly Ile Leu Gly
85 90 95 100

gac tgc tgg ctg ctg gct gcc atc ggc tcc ctt acc acc tgc ccc aaa 451
Asp Cys Trp Leu Leu Ala Ala Ile Gly Ser Leu Thr Thr Cys Pro Lys
105 110 115

ctg cta tac cgc gtg gtg ccc aga gga cag agc ttc aag aaa aac tat 499
Leu Leu Tyr Arg Val Val Pro Arg Gly Gln Ser Phe Lys Lys Asn Tyr
120 125 130

| | |
|---|------|
| gct ggc atc ttc cat ttt cag att tgg cag ttt gga cag tgg gtg aac | 547 |
| Ala Gly Ile Phe His Phe Gln Ile Trp Gln Phe Gly Gln Trp Val Asn | |
| 135 140 145 | |
| gtg gtg gta gat gac cgg ctg ccc aca aag aat gac aag ctg gtg ttt | 595 |
| Val Val Val Asp Asp Arg Leu Pro Thr Lys Asn Asp Lys Leu Val Phe | |
| 150 155 160 | |
| gtg cac tca acc gaa cgc agt gag ttc tgg agt gcc ctg ctg gag aag | 643 |
| Val His Ser Thr Glu Arg Ser Glu Phe Trp Ser Ala Leu Leu Glu Lys | |
| 165 170 175 180 | |
| gcg tat gcc aag ctg agt ggg tcc tat gaa gca ttg tca ggg ggc agt | 691 |
| Ala Tyr Ala Lys Leu Ser Gly Ser Tyr Glu Ala Leu Ser Gly Gly Ser | |
| 185 190 195 | |
| acc atg gag ggc ctt gag gac ttc aca gga ggc gtg gcc cag agc ttc | 739 |
| Thr Met Glu Gly Leu Glu Asp Phe Thr Gly Gly Val Ala Gln Ser Phe | |
| 200 205 210 | |
| caa ctc cag agg ccc cct cag aac ctg ctc agg ctc ctt agg aag gcc | 787 |
| Gln Leu Gln Arg Pro Pro Gln Asn Leu Leu Arg Leu Leu Arg Lys Ala | |
| 215 220 225 | |
| gtg gag cga tcc tcc ctc atg ggt tgc tcc att gaa gtc acc agt gat | 835 |
| Val Glu Arg Ser Ser Leu Met Gly Cys Ser Ile Glu Val Thr Ser Asp | |
| 230 235 240 | |
| agt gaa ctg gaa tcc atg act gac aag atg ctg gtg aga ggg cac gct | 883 |
| Ser Glu Leu Glu Ser Met Thr Asp Lys Met Leu Val Arg Gly His Ala | |
| 245 250 255 260 | |
| tac tct gtg act ggc ctt cag gat gtc cac tac aga ggc aaa atg gaa | 931 |
| Tyr Ser Val Thr Gly Leu Gln Asp Val His Tyr Arg Gly Lys Met Glu | |
| 265 270 275 | |
| aca ctg att cgg gtc cgg aat ccc tgg ggc cgg att gag tgg aat gga | 979 |
| Thr Leu Ile Arg Val Arg Asn Pro Trp Gly Arg Ile Glu Trp Asn Gly | |
| 280 285 290 | |
| gct tgg agt gac agt gcc agg gag tgg gaa gag gtg gcc tca gac atc | 1027 |
| Ala Trp Ser Asp Ser Ala Arg Glu Trp Glu Glu Val Ala Ser Asp Ile | |
| 295 300 305 | |
| cag atg cag ctg ctg cac aag acg gag gac ggg gag ttc tgg atg tcc | 1075 |
| Gln Met Gln Leu Leu His Lys Thr Glu Asp Gly Glu Phe Trp Met Ser | |
| 310 315 320 | |
| tac caa gat ttc ctg aac aac ttc acg ctc ctg gag atc tgc aac ctc | 1123 |
| Tyr Gln Asp Phe Leu Asn Asn Phe Thr Leu Leu Glu Ile Cys Asn Leu | |
| 325 330 335 340 | |
| acg cct gat aca ctc tct ggg gac tac aag agc tac tgg cac acc acc | 1171 |
| Thr Pro Asp Thr Leu Ser Gly Asp Tyr Lys Ser Tyr Trp His Thr Thr | |
| 345 350 355 | |
| ttc tac gag ggc agc tgg cgc aga ggc agc tcc gca ggg ggc tgc agg | 1219 |
| Phe Tyr Glu Gly Ser Trp Arg Arg Gly Ser Ser Ala Gly Gly Cys Arg | |
| 360 365 370 | |
| aac cac cct ggc acg ttc tgg acc aac ccc cag ttt aag atc tct ctt | 1267 |
| Asn His Pro Gly Thr Phe Trp Thr Asn Pro Gln Phe Lys Ile Ser Leu | |
| 375 380 385 | |

| | |
|---|------|
| cct gag ggg gat gac cca gag gat gac gca gag ggc aat gtt gtg gtc Pro Glu Gly Asp Asp Pro Glu Asp Asp Ala Glu Gly Asn Val Val Val 390 395 400 | 1315 |
| tgc acc tgc ctg gtg gcc cta atg cag aag aac tgg cgg cat gca cgg Cys Thr Cys Leu Val Ala Leu Met Gln Lys Asn Trp Arg His Ala Arg 405 410 415 420 | 1363 |
| cag cag gga gcc cag ctg cag acc att ggc ttt gtc ctc tac gcg gtc Gln Gln Gly Ala Gln Leu Gln Thr Ile Gly Phe Val Leu Tyr Ala Val 425 430 435 | 1411 |
| cca aaa gag ttt cag aac att cag gat gtc cac ttg aag aag gaa ttc Pro Lys Glu Phe Gln Asn Ile Gln Asp Val His Leu Lys Lys Glu Phe 440 445 450 | 1459 |
| ttc acg aag tat cag gac cac ggc ttc tca gag atc ttc acc aac tca Phe Thr Lys Tyr Gln Asp His Gly Phe Ser Glu Ile Phe Thr Asn Ser 455 460 465 | 1507 |
| cgg gag gtg agc agc caa ctc cgg ctg cct ccg ggg gaa tat atc att Arg Glu Val Ser Ser Gln Leu Arg Leu Pro Pro Gly Glu Tyr Ile Ile 470 475 480 | 1555 |
| att ccc tcc acc ttt gag cca cac aga gat gct gac ttc ctg ctt cgg Ile Pro Ser Thr Phe Glu Pro His Arg Asp Ala Asp Phe Leu Leu Arg 485 490 495 500 | 1603 |
| gtc ttc acc gag aag cac agc gag tca tgg gaa ttg gat gaa gtc aac Val Phe Thr Glu Lys His Ser Glu Ser Trp Glu Leu Asp Glu Val Asn 505 510 515 | 1651 |
| tat gct gag caa ctc caa gag gaa aag gtc tct gag gat gac atg gac Tyr Ala Glu Gln Leu Gln Glu Glu Lys Val Ser Glu Asp Asp Met Asp 520 525 530 | 1699 |
| cag gac ttc cta cat ttg ttt aag ata gtg gca gga gag ggc aag gag Gln Asp Phe Leu His Leu Phe Lys Ile Val Ala Gly Glu Gly Lys Glu 535 540 545 | 1747 |
| ata ggg gtg tat gag ctc cag agg ctg ctc aac agg atg gcc atc aaa Ile Gly Val Tyr Glu Leu Gln Arg Leu Leu Asn Arg Met Ala Ile Lys 550 555 560 | 1795 |
| ttc aaa agc ttc aag acc aag ggc ttt ggc ctg gat gct tgc cgc tgc Phe Lys Ser Phe Lys Thr Lys Gly Phe Gly Leu Asp Ala Cys Arg Cys 565 570 575 580 | 1843 |
| atg atc aac ctc atg gat aaa gat ggc tct ggc aag ctg ggg ctt cta Met Ile Asn Leu Met Asp Lys Asp Gly Ser Gly Lys Leu Gly Leu Leu 585 590 595 | 1891 |
| gag ttc aag atc ctg tgg aaa aaa ctc aag aaa tgg atg gac atc ttc Glu Phe Lys Ile Leu Trp Lys Lys Leu Lys Lys Trp Met Asp Ile Phe 600 605 610 | 1939 |
| aga gag tgt gac cag gac cat tca ggc acc ttg aac tcc tat gag atg Arg Glu Cys Asp Gln Asp His Ser Gly Thr Leu Asn Ser Tyr Glu Met 615 620 625 | 1987 |
| cgc ctg gtt att gag aaa gca ggc atc aag ctg aac aac aag gta atg Arg Leu Val Ile Glu Lys Ala Gly Ile Lys Leu Asn Asn Lys Val Met 630 635 640 | 2035 |

cag gtc ctg gtg gcc agg tat gca gat gat gac ctg atc ata gac ttt 2083
 Gln Val Leu Val Ala Arg Tyr Ala Asp Asp Asp Leu Ile Ile Asp Phe
 645 650 655 660
 gac agc ttc atc agc tgt ttc ctg agg cta aag acc atg ttc aca ttc 2131
 Asp Ser Phe Ile Ser Cys Phe Leu Arg Leu Lys Thr Met Phe Thr Phe
 665 670 675
 ttt cta acc atg gac ccc aag aat act ggc cat att tgc ttg agc ctg 2179
 Phe Leu Thr Met Asp Pro Lys Asn Thr Gly His Ile Cys Leu Ser Leu
 680 685 690
 gaa cag tgg ctg cag atg acc atg tgg gga tag aggcgctg taggagcctg 2230
 Glu Gln Trp Leu Gln Met Thr Met Trp Gly *
 695 700
 gtcattcteta ccagcagcag cagcagcgag gttctagccc aggagggtgg ggtgcttctt 2290
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<400> 704
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 cgagaagccg tccaggaaac atg ctc tca ggg gac ccc cat ctg cct cag 110
 Met Leu Ser Gly Asp Pro His Leu Pro Gln
 1 5 10
 cct ctt tgt cac tgc ctg gac cat tgt ccc tgc tgt ttc tca ggc acc 158
 Pro Leu Cys His Cys Leu Asp His Cys Pro Cys Cys Phe Ser Gly Thr
 15 20 25
 acc agg acc agc tga tcattccagc ccacagcaat ggagccacat gactcctccc 213
 Thr Arg Thr Ser *
 30
 acatggactc tgagttccga tacactctct tcccgattgt ttacagcatc atctttgtgc 273
 tcgggggtcat tgctaattggc tacgtgctgt gggctctttgc ccgcctgtac ccttgcaaga 333
 aattcaatga gataaagatc ttcattggtga acctcaccat ggcggacatg ctcttcttga 393
 tcacctgccc actttggatt gtctactacc aaaaccaggg caactggata ctccccaaat 453
 tcctgtgcaa cgtggctggc tgcccttttct tcatcaacac ctactgctct gtggccttcc 513
 tgggggtcat cacttataac cgcttccagg cagtaactcg gcccatcaag actgctcagg 573
 ccaacacccg caagcgtggc atctctttgt ccttggtcat ctgggtggcc attgtgggag 633
 ctgcattcta ctctctcacc ctggactcca ccaacacagt gcccgacagt gctggctcag 693

gcaacgtcac tcgctgcttt gagcattacg agaagggcag cgtgccagtc ctcatcatcc 753
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 Met Thr Tyr Ile Lys Ser Pro Ala Pro Cys Gln Thr Gln
 1 5 10
 acg tgc tat gtc cag ggt gct tct cct tgc cag agc tat tat gtt caa 157
 Thr Cys Tyr Val Gln Gly Ala Ser Pro Cys Gln Ser Tyr Tyr Val Gln
 15 20 25
 gct cct gca agt ggc tca acc tcc cag tac tgt gtc act gac cca tgc 205
 Ala Pro Ala Ser Gly Ser Thr Ser Gln Tyr Cys Val Thr Asp Pro Cys
 30 35 40 45
 tct gct ccc tgt tcc acc agc tac tgc tgt ctg gct ccc cgg acc ttc 253
 Ser Ala Pro Cys Ser Thr Ser Tyr Cys Cys Leu Ala Pro Arg Thr Phe
 50 55 60
 ggg gtg agt ccc ctg aga cgc tgg att cag cgg ccc cag aac tgc aac 301
 Gly Val Ser Pro Leu Arg Arg Trp Ile Gln Arg Pro Gln Asn Cys Asn
 65 70 75

aca gga tca tct ggc tgc tgt gag aat tcg gga agc tct ggg tgc tgt 349
 Thr Gly Ser Ser Gly Cys Cys Glu Asn Ser Gly Ser Ser Gly Cys Cys
 80 85 90

ggt tct ggg ggc tgt ggc tgc agc tgt gga tgt ggc agc tct ggg tgc 397
 Gly Ser Gly Gly Cys Gly Cys Ser Cys Gly Cys Gly Ser Ser Gly Cys
 95 100 105

tgc tgt ttg gga att atc ccc atg aag tcc cga agt cct gcg ttg ctg 445
 Cys Cys Leu Gly Ile Ile Pro Met Lys Ser Arg Ser Pro Ala Leu Leu
 110 115 120 125

tgacctgag gatgactgct gctgctaaac atacgacagc tcaactccag aatgcactgc 505

cccgctaccc ctctggaa 523

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 <213> Homo sapiens

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 <222> (1)...(1783)
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aggaggcttc agtctcagtg gctcagcctt cccagctgat ctgaagctcc tgtgcagcct 120

cagccctaca cc atg acc tcc ttc tac agc acc tcc tca tgc cct ctg 168
 Met Thr Ser Phe Tyr Ser Thr Ser Ser Cys Pro Leu
 1 5 10

ggt tgc acc atg gct cct gga gca aga aat gtc ttt gtc tct cct atc 216
 Gly Cys Thr Met Ala Pro Gly Ala Arg Asn Val Phe Val Ser Pro Ile
 15 20 25

gat gtt ggg tgc cag cct gtg gca gag gcc aat gct gcc tcc atg tgc 264
 Asp Val Gly Cys Gln Pro Val Ala Glu Ala Asn Ala Ala Ser Met Cys
 30 35 40

ctc ttg gcc aac gtg gca cac gcc aac aga gtc cgt gtg ggg tcg act 312
 Leu Leu Ala Asn Val Ala His Ala Asn Arg Val Arg Val Gly Ser Thr
 45 50 55 60

ccc ctg ggc cgc ccc agc ctc tgt ctg ccc cca acc agt cac act gct 360
 Pro Leu Gly Arg Pro Ser Leu Cys Leu Pro Pro Thr Ser His Thr Ala
 65 70 75

tgt ccc ttg cca ggg acc tgt cac att ccc ggc aac atc gga atc tgt 408
 Cys Pro Leu Pro Gly Thr Cys His Ile Pro Gly Asn Ile Gly Ile Cys
 80 85 90

ggg gcc tac ggc aaa aac acc ctg aat ggc cat gag aag gag acc atg 456

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Gly | Ala | Tyr | Gly | Lys | Asn | Thr | Leu | Asn | Gly | His | Glu | Lys | Glu | Thr | Met | |
| | 95 | | | | | | 100 | | | | | 105 | | | | |
| aag | ttc | ctg | aat | gac | cgc | ctg | gcc | aac | tac | ctg | gag | aag | gtg | cgc | cag | 504 |
| Lys | Phe | Leu | Asn | Asp | Arg | Leu | Ala | Asn | Tyr | Leu | Glu | Lys | Val | Arg | Gln | |
| | 110 | | | | | 115 | | | | | 120 | | | | | |
| ctg | gag | cag | gag | aat | gca | gag | ctg | gag | acc | aca | ctc | ctc | gag | agg | agc | 552 |
| Leu | Glu | Gln | Glu | Asn | Ala | Glu | Leu | Glu | Thr | Thr | Leu | Leu | Glu | Arg | Ser | |
| 125 | | | | | 130 | | | | | 135 | | | | | 140 | |
| aag | tgc | cac | gag | tcc | acc | gtg | tgc | ccc | gac | tac | cag | tcc | tac | ttc | cgt | 600 |
| Lys | Cys | His | Glu | Ser | Thr | Val | Cys | Pro | Asp | Tyr | Gln | Ser | Tyr | Phe | Arg | |
| | | | | 145 | | | | | 150 | | | | | 155 | | |
| aca | atc | gag | gag | ctc | cag | cag | aag | atc | ctg | tgc | agc | aag | gct | gag | aat | 648 |
| Thr | Ile | Glu | Glu | Leu | Gln | Gln | Lys | Ile | Leu | Cys | Ser | Lys | Ala | Glu | Asn | |
| | | | 160 | | | | | 165 | | | | | 170 | | | |
| gcc | agg | ctg | att | gta | caa | att | gac | aac | gcg | aag | ctg | gct | gct | gat | gac | 696 |
| Ala | Arg | Leu | Ile | Val | Gln | Ile | Asp | Asn | Ala | Lys | Leu | Ala | Ala | Asp | Asp | |
| | 175 | | | | | | 180 | | | | | 185 | | | | |
| ttt | agg | atc | aag | ctg | gag | agt | gag | cgc | tcc | ctt | cac | cag | ctg | gtg | gag | 744 |
| Phe | Arg | Ile | Lys | Leu | Glu | Ser | Glu | Arg | Ser | Leu | His | Gln | Leu | Val | Glu | |
| | 190 | | | | | 195 | | | | | 200 | | | | | |
| gcg | gac | aag | tgc | ggg | acg | cag | aag | ctc | ctg | gat | gac | gcg | acc | ctg | gcc | 792 |
| Ala | Asp | Lys | Cys | Gly | Thr | Gln | Lys | Leu | Leu | Asp | Asp | Ala | Thr | Leu | Ala | |
| 205 | | | | | 210 | | | | 215 | | | | | | 220 | |
| aag | gcc | gac | ctg | gag | gcc | cag | cag | gag | tcc | ctg | aag | gag | gag | cag | ctc | 840 |
| Lys | Ala | Asp | Leu | Glu | Ala | Gln | Gln | Glu | Ser | Leu | Lys | Glu | Glu | Gln | Leu | |
| | | | | 225 | | | | | 230 | | | | | 235 | | |
| tcc | ctc | aag | agc | aac | cac | gag | cag | gaa | gta | aag | att | ctg | agg | agt | cag | 888 |
| Ser | Leu | Lys | Ser | Asn | His | Glu | Gln | Glu | Val | Lys | Ile | Leu | Arg | Ser | Gln | |
| | | | 240 | | | | | 245 | | | | | 250 | | | |
| ctg | ggg | gag | aag | ttc | cgg | atc | gag | ctg | gac | att | gag | ccc | acc | att | gac | 936 |
| Leu | Gly | Glu | Lys | Phe | Arg | Ile | Glu | Leu | Asp | Ile | Glu | Pro | Thr | Ile | Asp | |
| | 255 | | | | | 260 | | | | | | 265 | | | | |
| ctg | aac | agg | gtg | ttg | ggg | gag | atg | cgg | gct | cag | tac | gag | gcc | atg | gtg | 984 |
| Leu | Asn | Arg | Val | Leu | Gly | Glu | Met | Arg | Ala | Gln | Tyr | Glu | Ala | Met | Val | |
| | 270 | | | | | 275 | | | | | 280 | | | | | |
| gag | acc | aac | cac | cag | gat | gtg | gaa | cag | tgg | ttc | caa | gcc | cag | tct | gaa | 1032 |
| Glu | Thr | Asn | His | Gln | Asp | Val | Glu | Gln | Trp | Phe | Gln | Ala | Gln | Ser | Glu | |
| 285 | | | | | 290 | | | | | 295 | | | | | 300 | |
| ggc | atc | agc | ctg | cag | gcc | atg | tcc | tgc | tcc | gag | gag | ctg | cag | tgc | tgc | 1080 |
| Gly | Ile | Ser | Leu | Gln | Ala | Met | Ser | Cys | Ser | Glu | Glu | Leu | Gln | Cys | Cys | |
| | | | | 305 | | | | | 310 | | | | | 315 | | |
| cag | tcg | gag | atc | ctg | gag | ctg | aga | tgc | acg | gtg | aat | gcc | ctg | gag | gtg | 1128 |
| Gln | Ser | Glu | Ile | Leu | Glu | Leu | Arg | Cys | Thr | Val | Asn | Ala | Leu | Glu | Val | |
| | | | 320 | | | | | 325 | | | | | 330 | | | |
| gag | cgc | caa | gcc | cag | cac | acc | ttg | aag | gac | tgt | ctg | cag | aac | tcc | ctg | 1176 |
| Glu | Arg | Gln | Ala | Gln | His | Thr | Leu | Lys | Asp | Cys | Leu | Gln | Asn | Ser | Leu | |
| | 335 | | | | | | 340 | | | | | 345 | | | | |
| tgt | gaa | gcg | gag | gac | cgc | tac | ggc | aca | gag | ctg | gcc | cag | atg | cag | agc | 1224 |

| | | | | | | | | | | | | | | | | | |
|------------|------------|------------|-----------|------------|------------|---------|----------|-----|----------|-----|----------|------|------------|-----|-----|------|--|
| Cys | Glu | Ala | Glu | Asp | Arg | Tyr | Gly | Thr | Glu | Leu | Ala | Gln | Met | Gln | Ser | | |
| 350 | | | | | | 355 | | | | | 360 | | | | | | |
| ctc | att | agc | aac | ttg | gaa | gag | cag | ttg | tct | gag | atc | cgg | gcc | gac | ctg | 1272 | |
| Leu | Ile | Ser | Asn | Leu | Glu | Glu | Gln | Leu | Ser | Glu | Ile | Arg | Ala | Asp | Leu | | |
| 365 | | | | | 370 | | | | | 375 | | | | | 380 | | |
| gag | cgg | cag | aac | cag | gag | tac | cag | gtg | ctg | ctg | gac | gtg | aag | gcc | cgg | 1320 | |
| Glu | Arg | Gln | Asn | Gln | Glu | Tyr | Gln | Val | Leu | Leu | Asp | Val | Lys | Ala | Arg | | |
| | | | | 385 | | | | | 390 | | | | | 395 | | | |
| ttg | gag | aac | gag | att | gcc | aca | tac | cgg | aac | ctt | act | ccc | ctg | caa | tcc | 1368 | |
| Leu | Glu | Asn | Glu | Ile | Ala | Thr | Tyr | Arg | Asn | Leu | Thr | Pro | Leu | Gln | Ser | | |
| | | | 400 | | | | | 405 | | | | | 410 | | | | |
| ctg | ttc | cac | gcc | tgc | ctc | ctg | tac | ttc | ttg | tcc | aag | ctg | tgg | ccc | tgt | 1416 | |
| Leu | Phe | His | Ala | Cys | Leu | Leu | Tyr | Phe | Leu | Ser | Lys | Leu | Trp | Pro | Cys | | |
| | | 415 | | | | | 420 | | | | | 425 | | | | | |
| cac | cgg | tgg | gtc | tcc | ctc | tgg | cca | tgg | agc | cag | cat | ggg | gag | atg | att | 1464 | |
| His | Arg | Trp | Val | Ser | Leu | Trp | Pro | Trp | Ser | Gln | His | Gly | Glu | Met | Ile | | |
| | 430 | | | | | 435 | | | | | 440 | | | | | | |
| ctg | aag | gcc | cga | gtt | agg | aga | ttg | agg | ctg | gtt | gca | ctg | ggg | tca | gga | 1512 | |
| Leu | Lys | Ala | Arg | Val | Arg | Arg | Leu | Arg | Leu | Val | Ala | Leu | Gly | Ser | Gly | | |
| 445 | | | | | 450 | | | | | 455 | | | | 460 | | | |
| gtg | ccc | tca | cct | tgc | cca | gtc | ttc | ctt | caa | gac | tag | actc | actgaggcat | | | 1562 | |
| Val | Pro | Ser | Pro | Cys | Pro | Val | Phe | Leu | Gln | Asp | * | | | | | | |
| | | | | 465 | | | | | 470 | | | | | | | | |
| tttccctaaa | tcaaccggta | gcagatactt | ccaaggagt | gctccctgcc | tatgcctcta | | | | | | | | | | | 1622 | |
| agctgtat | ttt | gtt | gttg | ctaaa | atg | gtt | gtaattat | tct | tccatgaa | ag | caattat | ttt | | | | 1682 | |
| tcctggtg | tc | ttctt | gggt | actttt | tag | gtt | ctattcc | agt | gtttcaga | aat | ctccaaaa | aat | | | | 1742 | |
| gtaactgg | gtt | tccctg | catt | aaatgg | tcaa | taaacct | cct | t | | | | | | | | 1783 | |

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 <211> 422
 <212> DNA
 <213> Homo sapiens

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 <222> (47)..(403)

<220>
 <221> misc_feature
 <222> (1)...(422)
 <223> n = a,t,c or g

| | | | | | | | | | |
|------------|-------------|------------|------------|--------|-----|-----|-----|----|--|
| tgatctgctg | cagtgccctga | accagcttta | ttcagcttct | acagag | atg | tcc | tgc | 55 | |
| | | | | | Met | Ser | Cys | | |
| | | | | | 1 | | | | |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| cag | cag | agc | cag | cag | cag | tgc | cag | cct | cct | ccc | aaa | tgt | acc | cct | aaa | 103 | |
| Gln | Gln | Ser | Gln | Gln | Gln | Cys | Gln | Pro | Pro | Pro | Lys | Cys | Thr | Pro | Lys | | |
| 5 | | | | | | 10 | | | | | 15 | | | | | | |

tgc cct ccc aag tgt act cct aag tgt cct ccc aag tgt ccc cca aaa 151
 Cys Pro Pro Lys Cys Thr Pro Lys Cys Pro Pro Lys Cys Pro Pro Lys
 20 25 30 35
 tgc cct ccc cag tat tca gcc cca tgc cca cct cca gtc tct tcc tgc 199
 Cys Pro Pro Gln Tyr Ser Ala Pro Cys Pro Pro Pro Val Ser Ser Cys
 40 45 50
 tgt ggt tcc agc tct ggg ggc tgc tgc agc tct gag ggt ggt ggc tgc 247
 Cys Gly Ser Ser Ser Gly Gly Cys Cys Ser Ser Glu Gly Gly Gly Cys
 55 60 65
 tgc ctg agc cac cac agg ccc cgc cag tcc ctc cga cgc cga cct cag 295
 Cys Leu Ser His His Arg Pro Arg Gln Ser Leu Arg Arg Arg Pro Gln
 70 75 80
 agt tcc agc tgc tgt ggc agt ggc agt ggc cag cag tct ggg ggc tcc 343
 Ser Ser Ser Cys Cys Gly Ser Gly Ser Gly Gln Gln Ser Gly Gly Ser
 85 90 95
 agc tgc tgc cac agc tct ggg ggc tct ggc tgc tgc cac agc tct gga 391
 Ser Cys Cys His Ser Ser Gly Gly Ser Gly Cys Cys His Ser Ser Gly
 100 105 110 115
 ggc tgc tgc tga cctgggccaat gaggagcan 422
 Gly Cys Cys *

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 <212> DNA
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 gtgccggcgc ctctggcagg gattggggaa tttttctgta aacacttcta agggcaatac 120
 agccaaaaat ggtggcttgc ttctgtttct ctttttttcc ccacacatag cagtaccaat 180
 atg aag tgg gta cag ttt tca aac cta cac gtt gat gtt cca aag gat 228
 Met Lys Trp Val Gln Phe Ser Asn Leu His Val Asp Val Pro Lys Asp
 1 5 10 15
 ttg acc aaa cct gtg gta aca atc tct gat gaa cca gac ata tta tat 276
 Leu Thr Lys Pro Val Val Thr Ile Ser Asp Glu Pro Asp Ile Leu Tyr
 20 25 30
 aag cgc ctc tcg gtt ttg gtg aaa ggt cac gat aag gct gta ttg gac 324
 Lys Arg Leu Ser Val Leu Val Lys Gly His Asp Lys Ala Val Leu Asp
 35 40 45
 agt tat gaa tat ttt gct gtg ctt gct gct aaa gaa ctt ggt atc tct 372
 Ser Tyr Glu Tyr Phe Ala Val Leu Ala Ala Lys Glu Leu Gly Ile Ser
 50 55 60

```

att aaa gta cat gaa cct cca agg aaa ata gag cga ttt act ctt ctc      420
Ile Lys Val His Glu Pro Pro Arg Lys Ile Glu Arg Phe Thr Leu Leu
 65                               70                               75                               80

caa tca gtg cat att tac aag aag cac aga gtt cag tat gaa atg aga      468
Gln Ser Val His Ile Tyr Lys Lys His Arg Val Gln Tyr Glu Met Arg
                        85                               90                               95

aca ctt tac aga tgt tta gag tta gaa cat cta act gga agc aca gca      516
Thr Leu Tyr Arg Cys Leu Glu Leu Glu His Leu Thr Gly Ser Thr Ala
                        100                               105                               110

gat gtc tac ttg gaa tat att cag cga aac tta cct gaa ggg gtt gcc      564
Asp Val Tyr Leu Glu Tyr Ile Gln Arg Asn Leu Pro Glu Gly Val Ala
                        115                               120                               125

atg gaa gta aca aag ttt tgt ttc ttt att ttt tta gac aca att aga      612
Met Glu Val Thr Lys Phe Cys Phe Phe Ile Phe Leu Asp Thr Ile Arg
      130                               135                               140

aca gtt acc aga aca cat caa gga gcc aat ctg gga aac act atc aga      660
Thr Val Thr Arg Thr His Gln Gly Ala Asn Leu Gly Asn Thr Ile Arg
      145                               150                               155                               160

aga aaa aga aga aag caa gtc ata aag cct cag gga ggc cat ttt tgc      708
Arg Lys Arg Arg Lys Gln Val Ile Lys Pro Gln Gly Gly His Phe Cys
                        165                               170                               175

cta aat ttg aaa tga ggggtgggcca gatgagtatg tttaagtgga gagtgcctcc      763
Leu Asn Leu Lys *
                        180

agctgagatg atttgagtct gtcctaactg ctccattgag ttctcgtgcc ctcacagct      823

gagggcaggg aatggaactt taatggaaga accactttta tctattcttt ttattcattg      883

tttcagttct gatttcagca aacatgagca aaccactttg actgaaagca gaaagagtga      943

aaattctatt ttgttacgct actggtgttc aattattagt ttgtaccatt tttaatttat      1003

gtcagttgat gcatctgaaa ataagtgctt ggagtgttcg tacccttatt tttttttaag      1063

attcctagaa ggaatctttg gttaattcag attgagcagt taaagttttt gctatttacc      1123

tttgtgcagg ctggcatatg ctaatttggg ggtggtaacc aaccgatttt atctcatgta      1183

agcattacat tttgaagact gaatatactt cacagcagat caaacacatt tatggcatgc      1243

actgacctct tcttggagcc cagactttat agagttgcct accagggggtt actgtaatgg      1303

a                                                                 1304

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<210> 709
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<220>

<221> misc_feature

<222> (1)...(414)

<223> n = a,t,c or g

<400> 709

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                                           Met
                                           1

tcc tgc cag cag aac caa cag cag tgc cag ccc cct ccc aag tgt cct      103
Ser Cys Gln Gln Asn Gln Gln Gln Cys Gln Pro Pro Pro Lys Cys Pro
           5                      10                      15

atc ccc aag tat ccc cca aaa tgt ccc tca aag tgt gca tcc tca tgc      151
Ile Pro Lys Tyr Pro Pro Lys Cys Pro Ser Lys Cys Ala Ser Ser Cys
           20                      25                      30

cca cct cca atc tct tcc tgc tgt ggc tcc agc tct ggg ggc tgc tgt      199
Pro Pro Pro Ile Ser Ser Cys Cys Gly Ser Ser Ser Gly Gly Cys Cys
           35                      40                      45

agc tct ggg ggc tgt ggt tgc tgc agc tct gag gga ggt ggc tgc tgc      247
Ser Ser Gly Gly Cys Gly Cys Cys Ser Ser Glu Gly Gly Gly Cys Cys
           50                      55                      60                      65

ctg agc cac cac aga cac cat agg tcc cac tgc cac aga ccc aag agc      295
Leu Ser His His Arg His His Arg Ser His Cys His Arg Pro Lys Ser
           70                      75                      80

tcc aat tgc tat ggc agt ggc agt ggc cag cag tct ggg ggt tct ggc      343
Ser Asn Cys Tyr Gly Ser Gly Ser Gly Gln Gln Ser Gly Gly Ser Gly
           85                      90                      95

tgc tgc tct gga ggg ggc tgt tgc tga cctgg accaggagca gcaccaaagg      395
Cys Cys Ser Gly Gly Gly Cys Cys *
           100                      105

aattagtggg cgaaggacn      414

```

<210> 710

<211> 2254

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (238)..(1278)

<400> 710

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gaggccctca gagtgaaagc gtaaggttca gtcagcctgc tgcagctttg cagacctcag      180

ctgggcatct ccagactccc ctgaaggaag agccttcctc acccaaaccc acaaaag      237
atg ctg aaa aag cct ctc tca gct gtg acc tgg ctc tgc att ttc atc      285
Met Leu Lys Lys Pro Leu Ser Ala Val Thr Trp Leu Cys Ile Phe Ile
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| gtg gcc ttt gtc agc cac cca gcg tgg ctg cag aag ctc tct aag cac | 333 |
| Val Ala Phe Val Ser His Pro Ala Trp Leu Gln Lys Leu Ser Lys His | |
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| Lys Thr Pro Ala Gln Pro Gln Leu Lys Ala Ala Asn Cys Cys Glu Glu | |
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| gtg aag gag ctc aag gcc caa gtt gcc aac ctt agc agc ctg ctg agt | 429 |
| Val Lys Glu Leu Lys Ala Gln Val Ala Asn Leu Ser Ser Leu Leu Ser | |
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| Glu Leu Asn Lys Lys Gln Glu Arg Asp Trp Val Ser Val Val Met Gln | |
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| gtg atg gag ctg gag agc aac agc aag cgc atg gag tcg cgg ctc aca | 525 |
| Val Met Glu Leu Glu Ser Asn Ser Lys Arg Met Glu Ser Arg Leu Thr | |
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| gat gct gag agc aag tac tcc gag atg aac aac caa att gac atc atg | 573 |
| Asp Ala Glu Ser Lys Tyr Ser Glu Met Asn Asn Gln Ile Asp Ile Met | |
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| cag ctg cag gca gca cag acg gtc act cag acc tcc gca gat gcc atc | 621 |
| Gln Leu Gln Ala Ala Gln Thr Val Thr Gln Thr Ser Ala Asp Ala Ile | |
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| tac gac tgc tct tcc ctc tac cag aag aac tac cgc atc tct gga gtg | 669 |
| Tyr Asp Cys Ser Ser Leu Tyr Gln Lys Asn Tyr Arg Ile Ser Gly Val | |
| 130 135 140 | |
| tat aag ctt cct cct gat gac ttc ctg ggc agc cct gaa ctg gag gtg | 717 |
| Tyr Lys Leu Pro Pro Asp Asp Phe Leu Gly Ser Pro Glu Leu Glu Val | |
| 145 150 155 160 | |
| ttc tgt gac atg gag act tca ggc gga ggc tgg acc atc atc cag aga | 765 |
| Phe Cys Asp Met Glu Thr Ser Gly Gly Gly Trp Thr Ile Ile Gln Arg | |
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| cga aaa agt ggc ctt gtc tcc ttc tac cgg gac tgg aag cag tac aag | 813 |
| Arg Lys Ser Gly Leu Val Ser Phe Tyr Arg Asp Trp Lys Gln Tyr Lys | |
| 180 185 190 | |
| cag ggc ttt ggc agc atc cgt ggg gac ttc tgg ctg ggg aac gaa cac | 861 |
| Gln Gly Phe Gly Ser Ile Arg Gly Asp Phe Trp Leu Gly Asn Glu His | |
| 195 200 205 | |
| atc cac cgg ctc tcc aga cag cca acc cgg ctg cgt gta gag atg gag | 909 |
| Ile His Arg Leu Ser Arg Gln Pro Thr Arg Leu Arg Val Glu Met Glu | |
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| gac tgg gag ggc aac ctg cgc tac gct gag tat agc cac ttt gtt ttg | 957 |
| Asp Trp Glu Gly Asn Leu Arg Tyr Ala Glu Tyr Ser His Phe Val Leu | |
| 225 230 235 240 | |
| ggc aat gaa ctc aac agc tat cgc ctc ttc ctg ggg aac tac act ggc | 1005 |
| Gly Asn Glu Leu Asn Ser Tyr Arg Leu Phe Leu Gly Asn Tyr Thr Gly | |
| 245 250 255 | |
| aat gtg ggg aac gac gcc ctc cag tat cat aac aac aca gcc ttc agc | 1053 |
| Asn Val Gly Asn Asp Ala Leu Gln Tyr His Asn Asn Thr Ala Phe Ser | |
| 260 265 270 | |

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Thr Lys Asp Lys Asp Asn Asp Asn Cys Leu Asp Lys Cys Ala Gln Leu
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cgc aaa ggt ggc tac tgg tac aac tgc tgc aca gac tcc aac ctc aat      1149
Arg Lys Gly Gly Tyr Trp Tyr Asn Cys Cys Thr Asp Ser Asn Leu Asn
      290                      295                      300

gga gtg tac tac cgc ctg ggt gag cac aat aag cac ctg gat ggc atc      1197
Gly Val Tyr Tyr Arg Leu Gly Glu His Asn Lys His Leu Asp Gly Ile
      305                      310                      315                      320

acc tgg tat ggc tgg cat gga tct acc tac tcc ctc aaa cgg gtg gag      1245
Thr Trp Tyr Gly Trp His Gly Ser Thr Tyr Ser Leu Lys Arg Val Glu
      325                      330                      335

atg aaa atc cgc cca gaa gac ttc aag cct taa aaggaggc tgccgtggag      1296
Met Lys Ile Arg Pro Glu Asp Phe Lys Pro *
      340                      345

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Asn Thr Val Trp Asn Met Glu Asp Leu Asp Leu Glu Tyr Ala Lys Thr
5 10 15

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Asp Ile Asn Cys Gly Thr Asp Leu Met Phe Tyr Ile Glu Met Asp Pro
20 25 30

cca gca ctg cct cct aaa cca cca aaa cct act act gta gcc aac aac 199
Pro Ala Leu Pro Pro Lys Pro Pro Lys Pro Thr Thr Val Ala Asn Asn
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Gly Met Asn Asn Asn Met Ser Leu Gln Asp Ala Glu Trp Tyr Trp Gly
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Asp Ile Ser Arg Glu Glu Val Asn Glu Lys Leu Arg Asp Thr Ala Asp
70 75 80

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Gly Thr Phe Leu Val Arg Asp Ala Ser Thr Lys Met His Gly Asp Tyr
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act ctt aca cta agg aaa ggg gga aat aac aaa tta atc aaa ata ttt 391
Thr Leu Thr Leu Arg Lys Gly Gly Asn Asn Lys Leu Ile Lys Ile Phe
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His Arg Asp Gly Lys Tyr Gly Phe Ser Asp Pro Leu Thr Phe Ser Ser
115 120 125 130

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Val Val Glu Leu Ile Asn His Tyr Arg Asn Glu Ser Leu Ala Gln Tyr
135 140 145

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Asn Pro Lys Leu Asp Val Lys Leu Leu Tyr Pro Val Ser Lys Tyr Gln
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Gln Asp Gln Val Val Lys Glu Asp Asn Ile Glu Ala Val Gly Lys Lys
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215 220 225

cag tgc cag acc caa gag cgg tac agc aaa gaa tac ata gaa aag ttt 775
Gln Cys Gln Thr Gln Glu Arg Tyr Ser Lys Glu Tyr Ile Glu Lys Phe

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| aaa cgt atg aac agc att aaa cca gac ctt atc cag ctg aga aag acg Lys Arg Met Asn Ser Ile Lys Pro Asp Leu Ile Gln Leu Arg Lys Thr 295 300 305 | | | 967 |
| aga gac caa tac ttg atg tgg ttg act caa aaa ggt gtt cgg caa aag Arg Asp Gln Tyr Leu Met Trp Leu Thr Gln Lys Gly Val Arg Gln Lys 310 315 320 | | | 1015 |
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| agc tct ctg aaa gaa ctg gtg cta cat tac caa cac acc tcc ctt gtg Ser Ser Leu Lys Glu Leu Val Leu His Tyr Gln His Thr Ser Leu Val 420 425 430 | | | 1351 |
| cag cac aac gac tcc ctc aat gtc aca cta gcc tac cca gta tat gca Gln His Asn Asp Ser Leu Asn Val Thr Leu Ala Tyr Pro Val Tyr Ala 435 440 445 450 | | | 1399 |
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1958

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Pro Arg Lys Lys Lys Pro Cys Pro Gln Arg Arg Asp Ser Phe Ser Gly
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                               45                               50                               55

tgt aaa aaa gtc tca aat gaa gaa aaa cca aag gtt gcc att ggt gaa      544
Cys Lys Lys Val Ser Asn Glu Glu Lys Pro Lys Val Ala Ile Gly Glu
                               60                               65                               70

gag tgc agg gca gat gaa caa gcc ttc ttg gtg gca ctt tat aaa tac      592
Glu Cys Arg Ala Asp Glu Gln Ala Phe Leu Val Ala Leu Tyr Lys Tyr
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atg aaa gaa agg aaa acg ccg ata gaa cga ata ccc tat tta ggt ttt      640
Met Lys Glu Arg Lys Thr Pro Ile Glu Arg Ile Pro Tyr Leu Gly Phe
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Gly Tyr Glu Thr Ile Thr Ala Arg Arg Gln Trp Lys His Ile Tyr Asp
                               125                               130                               135

gaa tta ggc ggt aat cct ggg agc acc agc gct gcc act tgt acc cgc      784
Glu Leu Gly Gly Asn Pro Gly Ser Thr Ser Ala Ala Thr Cys Thr Arg
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Arg His Tyr Glu Arg Leu Ile Leu Pro Tyr Glu Arg Phe Ile Lys Gly
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Glu Glu Asp Lys Pro Leu Pro Pro Ile Lys Pro Arg Lys Gln Glu Asn
     170                               175                               180

agt tca cag gaa aat gag aac aaa aca aaa gta tct gga acc aaa cgc      928
Ser Ser Gln Glu Asn Glu Asn Lys Thr Lys Val Ser Gly Thr Lys Arg

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| | 205 | 210 | 215 | |
| aag ccc cag gat gca gca gag gtt tca tca gag caa gaa aaa gaa caa | | | | 1024 |
| Lys Pro Gln Asp Ala Ala Glu Val Ser Ser Glu Gln Glu Lys Glu Gln | | | | |
| | 220 | 225 | 230 | |
| gag act tta ata agc cag aaa agc atc cct gag cct ctc cca gca gca | | | | 1072 |
| Glu Thr Leu Ile Ser Gln Lys Ser Ile Pro Glu Pro Leu Pro Ala Ala | | | | |
| | 235 | 240 | 245 | |
| gac atg aag aaa aaa ata gaa ggg tat cag gaa ttt tca gcg aag ccc | | | | 1120 |
| Asp Met Lys Lys Lys Ile Glu Gly Tyr Gln Glu Phe Ser Ala Lys Pro | | | | |
| | 250 | 255 | 260 | |
| ctg gca tcc aga gta gac cca gag aag gac aac gaa aca gac caa ggt | | | | 1168 |
| Leu Ala Ser Arg Val Asp Pro Glu Lys Asp Asn Glu Thr Asp Gln Gly | | | | |
| | 265 | 270 | 275 | 280 |
| tcc aac agt gag aag gtg gca gag gag gcg gga gag aag ggg ccc aca | | | | 1216 |
| Ser Asn Ser Glu Lys Val Ala Glu Glu Ala Gly Glu Lys Gly Pro Thr | | | | |
| | 285 | 290 | 295 | |
| cct cca ctc cca agt gct cct ctg gcc cca gaa aaa gat tca gcc ttg | | | | 1264 |
| Pro Pro Leu Pro Ser Ala Pro Leu Ala Pro Glu Lys Asp Ser Ala Leu | | | | |
| | 300 | 305 | 310 | |
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| Val Pro Gly Ala Ser Lys Gln Pro Leu Thr Ser Pro Ser Ala Leu Val | | | | |
| | 315 | 320 | 325 | |
| gac tca aaa caa gaa tcc aaa ctg tgc tgt ttt aca gag agc cct gaa | | | | 1360 |
| Asp Ser Lys Gln Glu Ser Lys Leu Cys Cys Phe Thr Glu Ser Pro Glu | | | | |
| | 330 | 335 | 340 | |
| agt gaa ccc caa gaa gca tcc ttc ccc agc ttc ccc acc aca cag gcc | | | | 1408 |
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ctgcaggag   atg tgt aca aag aca atc cca gtc ctc tgg gga tgt ttc      168
              Met Cys Thr Lys Thr Ile Pro Val Leu Trp Gly Cys Phe
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ctc ctg tgg aat ctc tat gtc tca tcc tct cag acc att tac cct gga      216
Leu Leu Trp Asn Leu Tyr Val Ser Ser Ser Gln Thr Ile Tyr Pro Gly
    15                20                25

atc aag gca agg att act cag agg gca ctt gac tat ggt gtt caa gct      264
Ile Lys Ala Arg Ile Thr Gln Arg Ala Leu Asp Tyr Gly Val Gln Ala
    30                35                40                45

gga atg aag atg att gag caa atg cta aaa gaa aag aaa ctc cca gat      312
Gly Met Lys Met Ile Glu Gln Met Leu Lys Glu Lys Lys Leu Pro Asp
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tta agc ggt tct gag tct ctt gaa ttt cta aaa gtt gat tat gta aac      360
Leu Ser Gly Ser Glu Ser Leu Glu Phe Leu Lys Val Asp Tyr Val Asn
                65                70                75

tac aat ttt tca aat ata aaa atc agt gcc ttt tca ttt cca aat acc      408
Tyr Asn Phe Ser Asn Ile Lys Ile Ser Ala Phe Ser Phe Pro Asn Thr
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tca ttg gct ttt gtg cct gga gtg gga atc aaa gcg cta acc aac cat      456
Ser Leu Ala Phe Val Pro Gly Val Gly Ile Lys Ala Leu Thr Asn His
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ggc act gcc aac atc agc aca gac tgg ggg ttc gag tct cca ctt ttt      504
Gly Thr Ala Asn Ile Ser Thr Asp Trp Gly Phe Glu Ser Pro Leu Phe
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gtt ctg tat aac tcc ttt gct gag ccc atg gag aaa ccc att tta aag      552
Val Leu Tyr Asn Ser Phe Ala Glu Pro Met Glu Lys Pro Ile Leu Lys
                130                135                140

aac tta aat gaa atg ctc tgt ccc att att gca agt gaa gtc aaa gcg      600
Asn Leu Asn Glu Met Leu Cys Pro Ile Ile Ala Ser Glu Val Lys Ala
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cta aat gcc aac ctc agc aca ctg gag gtt tta acc aag att gac aac      648
Leu Asn Ala Asn Leu Ser Thr Leu Glu Val Leu Thr Lys Ile Asp Asn
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tac act ctg ctg gat tac tcc cta atc agt tct cca gaa att act gag      696
Tyr Thr Leu Leu Asp Tyr Ser Leu Ile Ser Ser Pro Glu Ile Thr Glu
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Asn Tyr Leu Asp Leu Asn Leu Lys Gly Val Phe Tyr Pro Leu Glu Asn
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ctc acc gac ccc ccc ttc tca cca gtt cct ttt gtg ctc cca gaa cgc      792

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| | | | | | | | | | | | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|------|
| Leu Thr Asp | Pro | Pro | Phe | Ser | Pro | Val | Pro | Phe | Val | Leu | Pro | Glu | Arg | | | | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| agc aac tcc atg ctc tac att gga atc gcc gag tat ttc ttt aaa tct | | | | | | | | | | | | | | | | | 840 |
| Ser Asn Ser Met Leu Tyr Ile Gly Ile Ala Glu Tyr Phe Phe Lys Ser | | 225 | | | | 230 | | | | | | 235 | | | | | |
| gcg tcc ttt gct cat ttc aca gct ggg gtt ttc aat gtc act ctc tcc | | | | | | | | | | | | | | | | | 888 |
| Ala Ser Phe Ala His Phe Thr Ala Gly Val Phe Asn Val Thr Leu Ser | | 240 | | | | 245 | | | | | | 250 | | | | | |
| acc gaa gag att tcc aac cat ttt gtt caa aac tct caa ggc ctt ggc | | | | | | | | | | | | | | | | | 936 |
| Thr Glu Glu Ile Ser Asn His Phe Val Gln Asn Ser Gln Gly Leu Gly | | 255 | | | | 260 | | | | | | 265 | | | | | |
| aac gtg ctc tcc cgg att gca gag atc tac atc ttg tcc cag ccc ttc | | | | | | | | | | | | | | | | | 984 |
| Asn Val Leu Ser Arg Ile Ala Glu Ile Tyr Ile Leu Ser Gln Pro Phe | | 270 | | | | 275 | | | | | | 280 | | | | | 285 |
| atg gtg agg atc atg gcc aca gag cct ccc ata atc aat cta caa cca | | | | | | | | | | | | | | | | | 1032 |
| Met Val Arg Ile Met Ala Thr Glu Pro Pro Ile Ile Asn Leu Gln Pro | | | | | | 290 | | | | | | 295 | | | | | 300 |
| ggc aat ttc acc ctg gac atc cct gcc tcc atc atg atg ctc acc caa | | | | | | | | | | | | | | | | | 1080 |
| Gly Asn Phe Thr Leu Asp Ile Pro Ala Ser Ile Met Met Leu Thr Gln | | | | | | 305 | | | | | | 310 | | | | | 315 |
| ccc aag aac tcc aca gtt gaa acc atc gtt tcc atg gac ttc gtt gct | | | | | | | | | | | | | | | | | 1128 |
| Pro Lys Asn Ser Thr Val Glu Thr Ile Val Ser Met Asp Phe Val Ala | | | | | | 320 | | | | | | 325 | | | | | 330 |
| agt acc agt gtt ggc ctg gtt att ttg gga caa aga ctg gtc tgc tcc | | | | | | | | | | | | | | | | | 1176 |
| Ser Thr Ser Val Gly Leu Val Ile Leu Gly Gln Arg Leu Val Cys Ser | | | | | | 335 | | | | | | 340 | | | | | 345 |
| ttg tct ctg aac aga ttc cgc ctt gct ttg cca gag tcc aat cgc agc | | | | | | | | | | | | | | | | | 1224 |
| Leu Ser Leu Asn Arg Phe Arg Leu Ala Leu Pro Glu Ser Asn Arg Ser | | | | | | 350 | | | | | | 355 | | | | | 360 |
| aac att gag gtc ttg agg ttt gaa aat att cta tcg tcc att ctt cac | | | | | | | | | | | | | | | | | 1272 |
| Asn Ile Glu Val Leu Arg Phe Glu Asn Ile Leu Ser Ser Ile Leu His | | | | | | 370 | | | | | | 375 | | | | | 380 |
| ttt gga gtc ctc cca ctg gcc aat gca aaa ttg cag caa gga ttt cct | | | | | | | | | | | | | | | | | 1320 |
| Phe Gly Val Leu Pro Leu Ala Asn Ala Lys Leu Gln Gln Gly Phe Pro | | | | | | 385 | | | | | | 390 | | | | | 395 |
| ctg ccc aat cca cac aaa ttc tta ttc gtc aat tca gat att gaa gtt | | | | | | | | | | | | | | | | | 1368 |
| Leu Pro Asn Pro His Lys Phe Leu Phe Val Asn Ser Asp Ile Glu Val | | | | | | 400 | | | | | | 405 | | | | | 410 |
| ctt gag ggt ttc ctt ttg att tcc acc gac ctg aag tat gaa aca tcc | | | | | | | | | | | | | | | | | 1416 |
| Leu Glu Gly Phe Leu Leu Ile Ser Thr Asp Leu Lys Tyr Glu Thr Ser | | | | | | 415 | | | | | | 420 | | | | | 425 |
| tca aag cag cag cca agt ttc cac gta tgg gaa ggt ctg aac ctg ata | | | | | | | | | | | | | | | | | 1464 |
| Ser Lys Gln Gln Pro Ser Phe His Val Trp Glu Gly Leu Asn Leu Ile | | | | | | 430 | | | | | | 435 | | | | | 440 |
| agc aga cag tgg agg ggg aag tca gcc cct tga ttgccggt ttgcaattca | | | | | | | | | | | | | | | | | 1515 |
| Ser Arg Gln Trp Arg Gly Lys Ser Ala Pro * | | | | | | 450 | | | | | | 455 | | | | | |
| ccccaggaag taaatggtcc ttaatcctac aactactgta aaccagaag ggaaagacag | | | | | | | | | | | | | | | | | 1575 |

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 Phe Thr Ile Asn Lys Glu Asp His Thr Leu Gly Asn Ile Ile Lys Ser
 15 20 25
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 Gln Leu Leu Lys Asp Pro Gln Val Leu Phe Ala Gly Tyr Lys Val Pro
 30 35 40 45
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 His Pro Leu Glu His Lys Ile Ile Ile Arg Val Gln Thr Thr Pro Asp
 50 55 60
 tac agc ccc cag gaa gcc ttt acc aac gcc atc acc gac ctc atc agc 841
 Tyr Ser Pro Gln Glu Ala Phe Thr Asn Ala Ile Thr Asp Leu Ile Ser

| 65 | 70 | 75 | |
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| gag ctg tcc ctg ctg gag gag cgc ttc cgg acg tgc ctg ctt ccc ctt | | | 889 |
| Glu Leu Ser Leu Leu Glu Glu Arg Phe Arg Thr Cys Leu Leu Pro Leu | | | |
| 80 | 85 | 90 | |
| cgc ctt ctg ccg tga ttgtcagttt cctgaggcct cccagccac gcttcctgta | | | 944 |
| Arg Leu Leu Pro * | | | |
| 95 | | | |
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| tgaggtggga ggatcacttg agcccaggag tttgagacca gcctgggcaa cacgctgccc | | | 1064 |
| cagagcacat cagctatgtg cccagctct caaacgacac cttggcgggg aggctcacc | | | 1124 |
| tgtccacctt cacgctggag cagccttttag gccagttcag cageccacaac atctctgact | | | 1184 |
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| gagccacaca tggacacgta agtatcttgt gtgtggacct gtataggcag gtgaatctcc | | | 180 |
| gaactgcaag gccggcgaag gctctcctga cattcttctt ttctaactct tcagctctcc | | | 240 |
| ttcctccact aagagcggaa a atg aac aaa tcc cag gaa caa gtg tca ttc | | | 291 |
| Met Asn Lys Ser Gln Glu Gln Val Ser Phe | | | |
| 1 | 5 | 10 | |
| aag gat gta tgt gtg gac ttc act cag gaa gag tgg tat ctg ctg gac | | | 339 |
| Lys Asp Val Cys Val Asp Phe Thr Gln Glu Glu Trp Tyr Leu Leu Asp | | | |
| 15 | 20 | 25 | |
| cct gct cag aag att cta tac aga gat gtg atc ctg gaa aat tat agc | | | 387 |
| Pro Ala Gln Lys Ile Leu Tyr Arg Asp Val Ile Leu Glu Asn Tyr Ser | | | |
| 30 | 35 | 40 | |
| aat ctt gtc tca gta ggg tat tgc att act aaa cca gaa gtg atc ttt | | | 435 |
| Asn Leu Val Ser Val Gly Tyr Cys Ile Thr Lys Pro Glu Val Ile Phe | | | |
| 45 | 50 | 55 | |
| aag atc gag caa gga gaa gag ccc tgg ata tta gaa aaa gga ttc cca | | | 483 |
| Lys Ile Glu Gln Gly Glu Glu Pro Trp Ile Leu Glu Lys Gly Phe Pro | | | |
| 60 | 65 | 70 | |
| agc cag tgc caa cca gaa agg gaa tgg gaa gtt gat gac gtg tta gag | | | 531 |

| | | | | | | | | | | | | | | | | |
|------|------|-----|------|-----|------|------|------|-----|------|------|------|------|-----|-----|------|---------|
| Ser | Gln | Cys | Gln | Pro | Glu | Arg | Glu | Trp | Glu | Val | Asp | Asp | Val | Leu | Glu | |
| 75 | | | | | 80 | | | | 85 | | | | | 90 | | |
| agc | agc | cag | gaa | cat | gaa | gat | gac | cca | ttt | tgg | gag | ctt | cta | ttc | ccc | 579 |
| Ser | Ser | Gln | Glu | His | Glu | Asp | Asp | Pro | Phe | Trp | Glu | Leu | Leu | Phe | Pro | |
| | | | | 95 | | | | 100 | | | | | | 105 | | |
| aac | aac | aaa | cag | taa | gtg | tag | aaaa | tgg | gat | aga | gga | agc | aaa | ac | ttt | caatttg |
| Asn | Asn | Lys | Gln | * | | | | | | | | | | | | 634 |
| | | | | 110 | | | | | | | | | | | | |
| ggg | caag | acc | ctg | ttc | ttta | aga | att | acc | tata | aatt | ttg | tgcc | cat | gtg | aat | gatttgg |
| | | | | | | | | | | | | | | | | 694 |
| gaat | ttt | ggg | gtta | att | tttt | gtaa | agac | tt | tcc | gaa | agtc | ctgg | tgg | ttt | atgt | tta |
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| gacagtggaa aaagccatgg tgtgtggttt ctgggaacca ccaacacttg caggtttagc | 180 |
| tttttcccag ggttgactac aagaaagaaa accatgtttt tgcaagatta aaatgtgggt | 240 |
| gagtgtgcct aaattaacca tccccatttt tatcatattt ccaccatcac ttcagggttt | 300 |
| taagagtcag tgctcacctg ggccgagctg gtagtacatt ttgcttctta gaaagctaag | 360 |
| tcctgggttc cgtctgattt taggttccag gaacttcctg agaacacccg atcgagagg | 420 |
| gtaattttct ggagtttggt ttgcagggat agctgggagt atggccaccc tgctccacga | 480 |
| tgccgtaatg aatccagcag aagtggtgaa gcagcgcttg cagatgtaca actcgagca | 540 |
| ccggtcagca atcagctgca tccggacggt gtggaggacc gaggggttg ggcccttcta | 600 |
| ccggagctac accacgcagc tgaccatgaa catcccttc cagtccatcc acttcatcac | 660 |
| ctatgagttc ctgcaggagc aggtcaaccc ccaccggacc tacaaccgc attcccacat | 720 |
| catctcaggc gggctggccg ggccctcgc cgcggccgcc acgaccccc tggacgtctg | 780 |
| taaaaccctt ctgaacactc aggagaacgt ggccctctcg ctggccaaca tcagcggccg | 840 |
| gctggtggtg cctatgggcc ctctgctccc caatgcctta gagagaggag gggacggcac | 900 |
| ggccgctcac cggaaggctg tgtgcgggga catccgagag gtctgggagc tggaccggct | 960 |
| gctgccttgt gacatccggg atg gcg cct tca tta cta tgc cct ttc act | 1010 |
| | Met Ala Pro Ser Leu Leu Cys Pro Phe Thr |
| | 1 5 10 |

| | |
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| gct atg cac aaa acc gtg ggg agg gcc tcc tgc gcc ccg ccg agc tgg | 1058 |
| Ala Met His Lys Thr Val Gly Arg Ala Ser Cys Ala Pro Pro Ser Trp | |
| 15 20 25 | |
| cgg atg gag ctg cgc agc ggg agc gtg ggc agc cag gcg gtg gcg cgg | 1106 |
| Arg Met Glu Leu Arg Ser Gly Ser Val Gly Ser Gln Ala Val Ala Arg | |
| 30 35 40 | |
| agg atg gat ggg gac agc cga gat ggc ggc ggc ggc aag gac gcc acc | 1154 |
| Arg Met Asp Gly Asp Ser Arg Asp Gly Gly Gly Gly Lys Asp Ala Thr | |
| 45 50 55 | |
| ggg tcg gag gac tac gag aac ctg ccg act agc gcc tcc gtg tcc acc | 1202 |
| Gly Ser Glu Asp Tyr Glu Asn Leu Pro Thr Ser Ala Ser Val Ser Thr | |
| 60 65 70 | |
| cac atg aca gca gga gcg atg gcc ggg atc ctg gag cac tcg gtc atg | 1250 |
| His Met Thr Ala Gly Ala Met Ala Gly Ile Leu Glu His Ser Val Met | |
| 75 80 85 90 | |
| tac ccg gtg gac tcg gtg aag aca cga atg cag agt ttg agt cca gat | 1298 |
| Tyr Pro Val Asp Ser Val Lys Thr Arg Met Gln Ser Leu Ser Pro Asp | |
| 95 100 105 | |
| ccc aaa gcc cag tac aca agt gtc tac gga gcc ctc aag aaa atc atg | 1346 |
| Pro Lys Ala Gln Tyr Thr Ser Val Tyr Gly Ala Leu Lys Lys Ile Met | |
| 110 115 120 | |
| cgg acc gaa ggc ttc tgg agg ccc ttg cga ggc gtc aac gtc atg atc | 1394 |
| Arg Thr Glu Gly Phe Trp Arg Pro Leu Arg Gly Val Asn Val Met Ile | |
| 125 130 135 | |
| atg ggt gca ggg cca gcc cat gcc atg tat ttt gcc tgc tat gaa aac | 1442 |
| Met Gly Ala Gly Pro Ala His Ala Met Tyr Phe Ala Cys Tyr Glu Asn | |
| 140 145 150 | |
| atg aaa agg act tta aat gac gtt ttc cac cac caa gga aac agc cac | 1490 |
| Met Lys Arg Thr Leu Asn Asp Val Phe His His Gln Gly Asn Ser His | |
| 155 160 165 170 | |
| cta gcc aac ggg ata gct ggg agt atg gcc acc ctg ctc cac gat gcg | 1538 |
| Leu Ala Asn Gly Ile Ala Gly Ser Met Ala Thr Leu Leu His Asp Ala | |
| 175 180 185 | |
| gta atg aat cca gca gaa gtg gtg aag cag cgc ttg cag atg tac aac | 1586 |
| Val Met Asn Pro Ala Glu Val Val Lys Gln Arg Leu Gln Met Tyr Asn | |
| 190 195 200 | |
| tcg cag cac cgg tca gca atc agc tgc atc cgg acg gtg tgg agg acc | 1634 |
| Ser Gln His Arg Ser Ala Ile Ser Cys Ile Arg Thr Val Trp Arg Thr | |
| 205 210 215 | |
| gag ggg ttg ggg gcc ttc tac cgg agc tac acc acg cag ctg acc atg | 1682 |
| Glu Gly Leu Gly Ala Phe Tyr Arg Ser Tyr Thr Thr Gln Leu Thr Met | |
| 220 225 230 | |
| aac atc ccc ttc cag tcc atc cac ttc atc acc tat gag ttc ctg cag | 1730 |
| Asn Ile Pro Phe Gln Ser Ile His Phe Ile Thr Tyr Glu Phe Leu Gln | |
| 235 240 245 250 | |
| gag cag gtc aac ccc cac cgg acc tac aac ccg cag tcc cac atc atc | 1778 |
| Glu Gln Val Asn Pro His Arg Thr Tyr Asn Pro Gln Ser His Ile Ile | |
| 255 260 265 | |

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 Ser Gly Gly Leu Ala Gly Ala Leu Ala Ala Ala Ala Asn Ser Asp Pro
 270 275 280

cga gag atc tct ttt ttt ggg ttt ggt ggg gta tct tca tca tcg aat 1874
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 Arg *
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 gagaataaga taaagagaaa atgaggctag aaaaacatgc aggagctaga aaggtaaagg 180
 aaccctgcc ccttgacctt ccttcctctt accctc atg gtc ctc tta ctg tcc 234
 Met Val Leu Leu Leu Ser
 1 5

ttg act ttc ttc tct gct tta aca ttc cat tct att tgt caa ctg cgt 282
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 Asn Thr Gly Val Glu Val Asp Ile Val Phe Gln Arg Val Ser Phe Leu
 25 30 35

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 tcctggcttt tctttcccat ctaattctca ggagtacctt gaatggctcc ttgaaagaga 570
 gggcacagga accctcacac catctctcct ttgctttatt cgggatggaa gctttccaat 630
 aattacttaa ctgggcgggt gtggcctctt catgctctat ggagcatccc cttggggaac 690
 agcttaaaaa taattagga gaccagacca aggaagggg ggg 733

<210> 719
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 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (49) .. (468)

<400> 719

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                                   Met Ser Ser
                                   1

tta ccc gtg cca tac aaa ctg cct gtg tct ttg tct gtt ggt tcc tgc      105
Leu Pro Val Pro Tyr Lys Leu Pro Val Ser Leu Ser Val Gly Ser Cys
      5                      10                      15

gtg ata atc aaa ggg aca cca atc cac tct ttt atc aat gac cca cag      153
Val Ile Ile Lys Gly Thr Pro Ile His Ser Phe Ile Asn Asp Pro Gln
      20                      25                      30                      35

ctg cag gtg gat ttc tac act gac atg gat gag gat tca gat att gcc      201
Leu Gln Val Asp Phe Tyr Thr Asp Met Asp Glu Asp Ser Asp Ile Ala
                      40                      45                      50

ttc cgt ttc cga gtg cac ttt ggc aat cat gtg gtc atg aac agg cgt      249
Phe Arg Phe Arg Val His Phe Gly Asn His Val Val Met Asn Arg Arg
                      55                      60                      65

gag ttt ggg ata tgg atg ttg gag gag aca aca gac tac gtg ccc ttt      297
Glu Phe Gly Ile Trp Met Leu Glu Glu Thr Thr Asp Tyr Val Pro Phe
      70                      75                      80

gag gat ggc aaa caa ttt gag ctg tgc atc tac gta cat tac aat gag      345
Glu Asp Gly Lys Gln Phe Glu Leu Cys Ile Tyr Val His Tyr Asn Glu
      85                      90                      95

tat gag ata aag gtc aat ggc ata cgc att tac ggc ttt gtc cat cga      393
Tyr Glu Ile Lys Val Asn Gly Ile Arg Ile Tyr Gly Phe Val His Arg
      100                      105                      110                      115

atc ccg cca tca ttt gtg aag atg gtg caa gtg tcg aga gat atc tcc      441
Ile Pro Pro Ser Phe Val Lys Met Val Gln Val Ser Arg Asp Ile Ser
                      120                      125                      130

ctg acc tca gtg tgt gtc tgc aat tga gggag atgatcacac tcctcattgt      493
Leu Thr Ser Val Cys Val Cys Asn *
      135                      140

tgaggaatcc ctctttctac ctgaccatgg gattcccaga acctgctaac agaataatcc      553

ctgctcacat tttcccctac actttgtcat taaaacagca cgaaaactca aaaaa      608

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<210> 720

<211> 1625

<212> DNA

<213> Homo sapiens

<220>

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<222> (40) .. (1179)

<400> 720

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| cattacgccca agcttggcac gaggccgagg ttgaagttc | atg agt tcg ccc agc | 54 |
| | Met Ser Ser Pro Ser | |
| | 1 5 | |
| ctc agt gac ctg ggc aag aga gag ccg gcc gcc gcc gcg gac gag cgg | | 102 |
| Leu Ser Asp Leu Gly Lys Arg Glu Pro Ala Ala Ala Ala Asp Glu Arg | | |
| | 10 15 20 | |
| ggc acg cag cag cgc cgg gcc tgc gcc aac gcc acc tgg aac agc atc | | 150 |
| Gly Thr Gln Gln Arg Arg Ala Cys Ala Asn Ala Thr Trp Asn Ser Ile | | |
| | 25 30 35 | |
| cac aac ggg gtg atc gcc gtc ttc cag cgc aag ggg ctg ccc gac cag | | 198 |
| His Asn Gly Val Ile Ala Val Phe Gln Arg Lys Gly Leu Pro Asp Gln | | |
| | 40 45 50 | |
| gag ctc ttc agc ctc aac gag ggc gtc cgg cag ctg ttg aag aca gag | | 246 |
| Glu Leu Phe Ser Leu Asn Glu Gly Val Arg Gln Leu Leu Lys Thr Glu | | |
| | 55 60 65 | |
| ctg ggg tcc ttc ttc acg gag tac ctg cag aac cag ctg ctg aca aaa | | 294 |
| Leu Gly Ser Phe Phe Thr Glu Tyr Leu Gln Asn Gln Leu Leu Thr Lys | | |
| | 70 75 80 85 | |
| ggc atg gtg atc ctt cgg gac aag att cgc ttc tat gag gga cag aag | | 342 |
| Gly Met Val Ile Leu Arg Asp Lys Ile Arg Phe Tyr Glu Gly Gln Lys | | |
| | 90 95 100 | |
| ctg ctg gac tca ctg gca gag acc tgg gac ttc ttc ttc agt gac gtg | | 390 |
| Leu Leu Asp Ser Leu Ala Glu Thr Trp Asp Phe Phe Phe Ser Asp Val | | |
| | 105 110 115 | |
| ctg ccc atg ctg cag gcc atc ttc tac ccg gtg cag ggc aag gag cca | | 438 |
| Leu Pro Met Leu Gln Ala Ile Phe Tyr Pro Val Gln Gly Lys Glu Pro | | |
| | 120 125 130 | |
| tcg gtg cgc cag ctg gcc ctg ctg cac ttc ccg aat gcc atc acc ctc | | 486 |
| Ser Val Arg Gln Leu Ala Leu Leu His Phe Arg Asn Ala Ile Thr Leu | | |
| | 135 140 145 | |
| agt gtg aag cta gag gat gcg ctg gcc ccg gcc cat gcc cgt gtg ccc | | 534 |
| Ser Val Lys Leu Glu Asp Ala Leu Ala Arg Ala His Ala Arg Val Pro | | |
| | 150 155 160 165 | |
| cct gcc atc gtg cag atg ctg ctg gtg ctg cag ggg gta cat gag tcc | | 582 |
| Pro Ala Ile Val Gln Met Leu Leu Val Leu Gln Gly Val His Glu Ser | | |
| | 170 175 180 | |
| agg ggc gtg act gag gac tac ctg cgc ctg gag acg ctg gtc cag aag | | 630 |
| Arg Gly Val Thr Glu Asp Tyr Leu Arg Leu Glu Thr Leu Val Gln Lys | | |
| | 185 190 195 | |
| gtg gtg tcg cca tac ctg ggc acc tac ggc ctc cac tcc agc gag ggg | | 678 |
| Val Val Ser Pro Tyr Leu Gly Thr Tyr Gly Leu His Ser Ser Glu Gly | | |
| | 200 205 210 | |
| ccc ttc acc cat tcc tgc atc ctg gaa aag cgc ctc ctc cgc cgc tcc | | 726 |
| Pro Phe Thr His Ser Cys Ile Leu Glu Lys Arg Leu Leu Arg Arg Ser | | |
| | 215 220 225 | |
| cgc tcg ggg gac gtg ctg gcc aag aac cct gtg gtg cgc tcc aag agc | | 774 |
| Arg Ser Gly Asp Val Leu Ala Lys Asn Pro Val Val Arg Ser Lys Ser | | |
| | 230 235 240 245 | |

| | |
|--|------|
| tac aac acg cct ctg ctg aac ccc gtg cag gag cac gag gcg gag ggc | 822 |
| Tyr Asn Thr Pro Leu Leu Asn Pro Val Gln Glu His Glu Ala Glu Gly | |
| 250 255 260 | |
| gcg gcg gcc ggc ggt acc agc atc cgc agg cac tct gtg tcg gag atg | 870 |
| Ala Ala Ala Gly Gly Thr Ser Ile Arg Arg His Ser Val Ser Glu Met | |
| 265 270 275 | |
| acg tcc tgc ccc gag cct cag ggc ttc tcc gac ccg ccc ggc cag ggc | 918 |
| Thr Ser Cys Pro Glu Pro Gln Gly Phe Ser Asp Pro Pro Gly Gln Gly | |
| 280 285 290 | |
| ccc acc ggg acc ttc agg tcc tcc ccg gcg ccc cac tca ggg ccc tgc | 966 |
| Pro Thr Gly Thr Phe Arg Ser Ser Pro Ala Pro His Ser Gly Pro Cys | |
| 295 300 305 | |
| ccc agc aga ctg tac ccc acg acc cag ccc cct gag cag ggc ttg gat | 1014 |
| Pro Ser Arg Leu Tyr Pro Thr Thr Gln Pro Pro Glu Gln Gly Leu Asp | |
| 310 315 320 325 | |
| ccc acc cgc agc tcc ctg ccc cgc tcc agc ccg gag aac ctg gtg gac | 1062 |
| Pro Thr Arg Ser Ser Leu Pro Arg Ser Ser Pro Glu Asn Leu Val Asp | |
| 330 335 340 | |
| cag atc ctg gag tcc gtg gac tcg gat tct gaa ggg att ttc att gac | 1110 |
| Gln Ile Leu Glu Ser Val Asp Ser Asp Ser Glu Gly Ile Phe Ile Asp | |
| 345 350 355 | |
| ttt ggc cgg ggc cgg ggc tct ggc atg tcc gac ttg gag ggc tct ggc | 1158 |
| Phe Gly Arg Gly Arg Gly Ser Gly Met Ser Asp Leu Glu Gly Ser Gly | |
| 360 365 370 | |
| ggc cgg cag agt gtc gtg tga gg cctcacagct ggccttgagt ttttactgac | 1211 |
| Gly Arg Gln Ser Val Val * | |
| 375 380 | |
| acgtccctgt gtgcgggggt gtccatgtgg cgtgtgtgtg agtgagactt ttttactgag | 1271 |
| tcccgtcccg ccagccctat cggcctcgtc actggccttg gtcactttgt atttctgtct | 1331 |
| tggttggaat taccatcagc cttccttgct cggcccaggt ctgtttcagg catctgagtc | 1391 |
| ggcgtttacc caggggcccgg gccagagacg ggggtcggcc gctcgtctcc acgctcctcc | 1451 |
| tgccccagcc ctctggtgtc cacacctgcc cacagagaat gtaaaccag tgggctctgc | 1511 |
| ccacgccggg ccccaaagt accagactcc agcacacctg tctcctcctg cctgggggtg | 1571 |
| ccatggggat ggaagggggt ggaataaaac ctgtcaacct ggaaaaaaaaaaaa | 1625 |

<210> 721
 <211> 1116
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (163) .. (789)

<400> 721
 gaggttagta agggggggtg atgtgcacta cggatcgccg ccggctaata tgaacctca 60

| | | | | | | |
|---|------------|------------|-------------|------------|-----------------|-----|
| ctaaaggggaa | taagcttgcg | gccgccgcga | gtctgggtatc | ctgagcttcg | tgagttgagc | 120 |
| gctgctgctc | cgcggtggag | tcaccgcacc | gctcccggga | tc | atg gtg ttc tac | 174 |
| | | | | | Met Val Phe Tyr | |
| | | | | | 1 | |
| ttc acc agc agc agc gtt aat tca tct gcc tac act att tac atg gga | 222 | | | | | |
| Phe Thr Ser Ser Ser Val Asn Ser Ser Ala Tyr Thr Ile Tyr Met Gly | | | | | | |
| 5 10 15 20 | | | | | | |
| aaa gat aaa tat gaa aat gaa gat ctg atc aag cat ggc tgg cct gaa | 270 | | | | | |
| Lys Asp Lys Tyr Glu Asn Glu Asp Leu Ile Lys His Gly Trp Pro Glu | | | | | | |
| 25 30 35 | | | | | | |
| gat atc tgg ttt cat gtg gac aaa ctc tct tcg gct cat gta tac ctt | 318 | | | | | |
| Asp Ile Trp Phe His Val Asp Lys Leu Ser Ser Ala His Val Tyr Leu | | | | | | |
| 40 45 50 | | | | | | |
| cga tta cat aag gga gag aat ata gaa gac atc cca aag gaa gtg ctg | 366 | | | | | |
| Arg Leu His Lys Gly Glu Asn Ile Glu Asp Ile Pro Lys Glu Val Leu | | | | | | |
| 55 60 65 | | | | | | |
| atg gac tgt gcc cac ctt gtg aag gcc aat agc att caa ggc tgc aag | 414 | | | | | |
| Met Asp Cys Ala His Leu Val Lys Ala Asn Ser Ile Gln Gly Cys Lys | | | | | | |
| 70 75 80 | | | | | | |
| atg aac aac gtt aat gtg gta tat acg ccg tgg tct aac ctg aag aaa | 462 | | | | | |
| Met Asn Asn Val Asn Val Val Tyr Thr Pro Trp Ser Asn Leu Lys Lys | | | | | | |
| 85 90 95 100 | | | | | | |
| aca gct gac atg gat gtg ggg cag ata ggc ttt cac agg cag aag gat | 510 | | | | | |
| Thr Ala Asp Met Asp Val Gly Gln Ile Gly Phe His Arg Gln Lys Asp | | | | | | |
| 105 110 115 | | | | | | |
| gta aaa att gtg aca gtg gag aag aaa gta aat gag atc ctg aac cga | 558 | | | | | |
| Val Lys Ile Val Thr Val Glu Lys Lys Val Asn Glu Ile Leu Asn Arg | | | | | | |
| 120 125 130 | | | | | | |
| tta gaa aag acc aaa gtc gag cgg ttc tca gac cta gca gca gag aaa | 606 | | | | | |
| Leu Glu Lys Thr Lys Val Glu Arg Phe Ser Asp Leu Ala Ala Glu Lys | | | | | | |
| 135 140 145 | | | | | | |
| gaa tgc aga gat cgt gaa gag agg aat gag aaa aaa gcc caa att cag | 654 | | | | | |
| Glu Cys Arg Asp Arg Glu Glu Arg Asn Glu Lys Lys Ala Gln Ile Gln | | | | | | |
| 150 155 160 | | | | | | |
| gaa atg aaa aag aga gaa aaa gaa gaa atg aag aag aag agg gaa atg | 702 | | | | | |
| Glu Met Lys Lys Arg Glu Lys Glu Glu Met Lys Lys Lys Arg Glu Met | | | | | | |
| 165 170 175 180 | | | | | | |
| gat gaa ctt agg agc tat tca tca cta atg aaa gtt gaa aat atg tct | 750 | | | | | |
| Asp Glu Leu Arg Ser Tyr Ser Ser Leu Met Lys Val Glu Asn Met Ser | | | | | | |
| 185 190 195 | | | | | | |
| tca aat cag gat ggc aat gat tca gat gaa ttc atg taa aaggagaaaa | 799 | | | | | |
| Ser Asn Gln Asp Gly Asn Asp Ser Asp Glu Phe Met * | | | | | | |
| 200 205 | | | | | | |
| ggagaaaagg acctttgaaa gatgtgaatg tagagacaat tgcagacctt ttggtttcat | 859 | | | | | |
| ctgtgttctg aaatataaaa tacaaccaa attctacctt catcctaccc agaaattatt | 919 | | | | | |
| gattttcaag ttttaaaaaa attgtacctt ttttgctgac agaaaaggat cagatatgta | 979 | | | | | |

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<210> 722
<211> 510
<212> DNA
<213> Homo sapiens
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<222> (163) .. (423)
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<212> DNA
<213> Homo sapiens
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<220>
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<222> (959) .. (1342)

<400> 723

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actcgtccag tgtggtggaa ttcctttcag aggcttccgg aggactgagc agctagaggt      60
gattttgcat ttgcgtttcc cgacgttgcc acatctcagg tgaataagtt ctatgaagcg      120
ctcacactag tacgtggccc ctcggtgggt tgtcctcgag gtcgaaggtc cagatgtcca      180
ggggctgccc tggactccag agtgggtcgg ctgagcaggc tgtggtcttg ggtgcttggg      240
cacctcccgt ctctccctgc tcagagttct tctctcctgg gcagccagaa aggatcagaa      300
ccggtcacat gcagagcggc ctcccgtatc ccacagcagc tccgttctct aatctgggtc      360
ttcagatgcg gctgtgtctc ccggcacctt gctggaatgt ggtgcatccc tcggagtcca      420
gcagccctta ggcagagctg ggtgccgagc ttgagtccag gagggcctca gacacctgcg      480
atcttgccgc ctgttgccct ggacagtggg tgtgctgtgg gtggaggatg gcgccctgcc      540
tccacggaag catccccagc ttgcccctca gtcacacgaa gcgtctgtcc ccagcctggg      600
gcatttctga gtggcctcca cttggcctct tcctttttct ggagcaagta tttgaactcc      660
tgcaggcgcc agagatctcc ttacctgttt cccgctaccc ttctccagcc aggtttctgc      720
cctcagccag attgtcctgc agtgacttgc ttttggccat ggagtagtgg ctgctcagtg      780
cctgagattg ttttagcagc agaagggacc ggggtccccct gctgctggca acacagacgc      840
ttgcttacag ttctctggtc ctggacacct gaggtctcgg cctccccagg acggcccttc      900
cagattctca ggaccacctt gccctccctg ccctgtctcc taggtgaccc tggcaaag      958
atg aga gtg cac att tcg tcc tgc ctg aag gtc cag gag cag atg gcc      1006
Met Arg Val His Ile Ser Ser Cys Leu Lys Val Gln Glu Gln Met Ala
      1             5             10             15

aac tgc ccc aag ttc gtc ccc gtg gtg ccc aca tca cag cct atc ccc      1054
Asn Cys Pro Lys Phe Val Pro Val Val Pro Thr Ser Gln Pro Ile Pro
      20             25             30

agc aac atc ccc aac agg tcc acc ttc gcc tgc ccg tac tgt ggt gcc      1102
Ser Asn Ile Pro Asn Arg Ser Thr Phe Ala Cys Pro Tyr Cys Gly Ala
      35             40             45

cgc aac ctg gac cag cag gag ctg gtg aag cac tgt gtg gaa agc cac      1150
Arg Asn Leu Asp Gln Gln Glu Leu Val Lys His Cys Val Glu Ser His
      50             55             60

cgc agc gac ccc aac cgc gtg gtg tgc ccc atc tgc tcg gca atg ccc      1198
Arg Ser Asp Pro Asn Arg Val Val Cys Pro Ile Cys Ser Ala Met Pro
      65             70             75             80

tgg ggg gac ccc agc tac aag agc gcc aac ttc ctg cag cac ctg ctt      1246
Trp Gly Asp Pro Ser Tyr Lys Ser Ala Asn Phe Leu Gln His Leu Leu
      85             90             95

cac cga cac aag ttc tcc tac gac acc ttt gtg gac tac agt att gac      1294
His Arg His Lys Phe Ser Tyr Asp Thr Phe Val Asp Tyr Ser Ile Asp
      100            105            110

gag gag gcc gcc ttc cag gct gct ctg gcc ctg tct ctc tct gag aac      1342
Glu Glu Ala Ala Phe Gln Ala Ala Leu Ala Leu Ser Leu Ser Glu Asn

```

| 115 | 120 | 125 | |
|------------|------------|-------------|---------------------------------------|
| tgaagggaag | cgcagccacc | cgcttgcgtc | tggggtcagg gatgtccccg ctctgtgtc 1402 |
| gcacctggca | cctgctcgga | agcgcacctc | accggactga gctcacagga ggagcctgca 1462 |
| cccgcgcaga | aggggagccg | gggccgagcc | tccgggcctg aatacggggc agccgccgag 1522 |
| gccgccagag | cagggccgcc | tgggtcccacc | ggcgtcgtcg ggttcttcgg tgcttctggc 1582 |
| cgagcaggcg | gcctacttgg | gcagggctgg | acgctgggac ctggagctgc cgccgtctct 1642 |
| tcaaagccat | gataccccct | cgtgggaaga | agggaccgac gcgcgagtcg cgctccgcag 1702 |
| tcgagccggg | aggaacccag | gctgctgccc | tgcccagccc gaccctgccc cggccccgct 1762 |
| tccaccttgc | gcatttggtg | ctggcttttg | tgatacttag gaacctgggc atcttttcta 1822 |
| tattatccag | tgtgataatc | ttttcacgtt | ttatagagca aagacagagc agttactctt 1882 |
| catattgcaa | tatctgtgtt | tgactaggaa | taatagtatt tttatggaac atttacaaaa 1942 |
| ttatatTTTT | taagaaaaca | atcaaaaaca | gcattggggg attggggcaa ggatggaagg 2002 |
| agcagtgggg | cagctgccag | agctcaggcg | agccatgggg tctgctgtgg ggtctgccct 2062 |
| ggccaccac | tgtgtgtctg | ggtccttgag | gtttgtacgt ttctctttga tgaccaggaa 2122 |
| gaaatcccag | caccccagcc | acaggctgtg | gctgctccca gcagaggcgg ggccggcaga 2182 |
| gaaggggcct | cctccacca | gagtcctggc | cttggcccg cgtcaccttc aaagctgact 2242 |
| gtgccccgct | gcgggagggg | acggcaccac | agtgggtggc gagcttgggg gcctgggcag 2302 |
| gggcccgcct | ggcgggccc | gcaacacgtc | aacattcttt tctgttcttg gcattaatta 2362 |
| ttgctgtctt | tttttaaaaa | aaaaaagttt | aaataaaatg tctcagagca tcaaaaaaaa 2422 |
| aaaaaaaa | | | 2430 |

<210> 724
 <211> 5371
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (108) .. (1856)

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| agaccctggg gaggtggctg ctcgagttt atgagacggt tgccccacc ctggcgtgcc | 60 |
| tgccccggcc gcggctgagg aggaggagga ggaggaggag gaggagg | 116 |
| atg atc tcc | |
| Met Ile Ser | |
| 1 | |
| aga tac act cgg aag gcg gtg cca cag agc ttg gag ctg aaa gga ata | 164 |
| Arg Tyr Thr Arg Lys Ala Val Pro Gln Ser Leu Glu Leu Lys Gly Ile | |
| 5 10 15 | |
| aca aaa cat gct ctt aac cat cat ccc cct cca gag aag ctg gag gaa | 212 |

| | | | | | | | | | | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Lys | His | Ala | Leu | Asn | His | His | Pro | Pro | Pro | Glu | Lys | Leu | Glu | Glu | |
| 20 | | | | | 25 | | | | | 30 | | | | | 35 | |
| att tcc ccc acc agt gac agt cat gag aaa gac aca agt tcc caa agc | | | | | | | | | | | | | | | | 260 |
| Ile Ser Pro Thr Ser Asp Ser His Glu Lys Asp Thr Ser Ser Gln Ser | | | | | 40 | | | | 45 | | | | | 50 | | |
| aag tct gac atc aca aga gaa tca tct ttt aca tca gcc gac act ggg | | | | | | | | | | | | | | | | 308 |
| Lys Ser Asp Ile Thr Arg Glu Ser Ser Phe Thr Ser Ala Asp Thr Gly | | | 55 | | | | | 60 | | | | | 65 | | | |
| aat tca ctg tct gct ttt cca agt tat aca ggc gca ggg ata tct act | | | | | | | | | | | | | | | | 356 |
| Asn Ser Leu Ser Ala Phe Pro Ser Tyr Thr Gly Ala Gly Ile Ser Thr | | 70 | | | | | 75 | | | | | 80 | | | | |
| gaa gga agc tcg gac ttc tcc tgg gga tat ggt gaa ctc gat caa aat | | | | | | | | | | | | | | | | 404 |
| Glu Gly Ser Ser Asp Phe Ser Trp Gly Tyr Gly Glu Leu Asp Gln Asn | 85 | | | | | 90 | | | | 95 | | | | | | |
| gcc act gaa aaa gtc cag aca atg ttc aca gcc att gat gaa ctc ttg | | | | | | | | | | | | | | | | 452 |
| Ala Thr Glu Lys Val Gln Thr Met Phe Thr Ala Ile Asp Glu Leu Leu | 100 | | | | 105 | | | | 110 | | | | | | 115 | |
| tat gag cag aag ttg agt gtg cat acc aag agt cta caa gaa gag tgc | | | | | | | | | | | | | | | | 500 |
| Tyr Glu Gln Lys Leu Ser Val His Thr Lys Ser Leu Gln Glu Glu Cys | | | | 120 | | | | 125 | | | | | | 130 | | |
| caa cag tgg aca gct agc ttt cct cac ctc agg att cta ggt agg cag | | | | | | | | | | | | | | | | 548 |
| Gln Gln Trp Thr Ala Ser Phe Pro His Leu Arg Ile Leu Gly Arg Gln | | | | 135 | | | | 140 | | | | | 145 | | | |
| ata atc act cca agt gaa ggt tat aga ttg tat cct aga tcc cct tct | | | | | | | | | | | | | | | | 596 |
| Ile Ile Thr Pro Ser Glu Gly Tyr Arg Leu Tyr Pro Arg Ser Pro Ser | | 150 | | | | | 155 | | | | | 160 | | | | |
| gct gtt tcc gct tca tat gaa aca acc ttg tct caa gaa aga gat tct | | | | | | | | | | | | | | | | 644 |
| Ala Val Ser Ala Ser Tyr Glu Thr Thr Leu Ser Gln Glu Arg Asp Ser | 165 | | | | | 170 | | | | | 175 | | | | | |
| act ata ttt ggt ata agg gga aag aag tta cat ttt tca tct tct tat | | | | | | | | | | | | | | | | 692 |
| Thr Ile Phe Gly Ile Arg Gly Lys Lys Leu His Phe Ser Ser Ser Tyr | 180 | | | | 185 | | | | 190 | | | | | | 195 | |
| gct cat aaa gca tct tcc att gcc aaa tcc tcc agc ttt tgt tct atg | | | | | | | | | | | | | | | | 740 |
| Ala His Lys Ala Ser Ser Ile Ala Lys Ser Ser Ser Phe Cys Ser Met | | | | 200 | | | | 205 | | | | | | 210 | | |
| gaa aga gat gag gaa gac tct ata atc gtc tca gaa gga ata att gag | | | | | | | | | | | | | | | | 788 |
| Glu Arg Asp Glu Glu Asp Ser Ile Ile Val Ser Glu Gly Ile Ile Glu | | | 215 | | | | 220 | | | | | | 225 | | | |
| gaa tac cta gca ttc gat cac ata gat ata gaa gag gga ttt cat ggg | | | | | | | | | | | | | | | | 836 |
| Glu Tyr Leu Ala Phe Asp His Ile Asp Ile Glu Glu Gly Phe His Gly | | 230 | | | | | 235 | | | | | 240 | | | | |
| aag aaa tca gaa gca gct aca gag aaa cag aaa tta ggg tat cct ccc | | | | | | | | | | | | | | | | 884 |
| Lys Lys Ser Glu Ala Ala Thr Glu Lys Gln Lys Leu Gly Tyr Pro Pro | 245 | | | | | 250 | | | | | 255 | | | | | |
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| | | | | | | | | | | | | | | | | |
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| Arg | Asn | Asn | Leu | Leu | Pro | Pro | Ile | Gly | Thr | Ala | Glu | Val | Glu | His | Val | |
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| | | | | | | | | | | | | | | | | |
|-----|-----------|-----|----------|-----|------------|------------|------------|------------|-----------|-----|-----------|-----|-----|-----|-----|------|
| Ser | Phe | Leu | Leu | Asp | Thr | Gln | Tyr | Arg | Arg | Ser | Cys | Ala | Val | Glu | Tyr | |
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 Tyr Ala Val Gln Leu Thr Ile Ser Trp Thr Val Leu Val Leu Phe Phe
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 Pro Gln Pro Thr Glu Lys Ser Asp *
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1981

| | |
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| 375 380 | |

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 Lys Ser Val Met Thr Asn Phe Ser Gln Leu Lys Glu Asp Val Arg Thr
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 His His Lys Glu Ala Lys Asn Leu Glu Lys Arg Leu Asp Lys Trp Leu
 65 70 75 80

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 Arg Phe Asp Gln Val Glu Glu Gly Glu Ile Gln Thr Thr Ile Arg Glu
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| agg cta gtt cca aag gtt tat ttt cct gag caa att cat gat gtt gta Arg Leu Val Pro Lys Val Tyr Phe Pro Glu Gln Ile His Asp Val Val 305 310 315 320 | 960 |
| cgg gcc aca aag tat ttc ctg aag cca gaa gtc tta cag aag tat atg Arg Ala Thr Lys Tyr Phe Leu Lys Pro Glu Val Leu Gln Lys Tyr Met 325 330 335 | 1008 |
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| | |
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| ttg cct gca tcc ttc aca aag aac tac aag cct gtt gta cag acc aca | 1392 |
| Leu Pro Ala Ser Phe Thr Lys Asn Tyr Lys Pro Val Val Gln Thr Thr | |
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| ggc aat gcc agg att gtc cag gag ctt cct cag ttg ctg gat gcc cgc | 1440 |
| Gly Asn Ala Arg Ile Val Gln Glu Leu Pro Gln Leu Leu Asp Ala Arg | |
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| tcc gcc cca ctc att gca gac cag gca gtg ctg cag ctc ctc cca aag | 1488 |
| Ser Ala Pro Leu Ile Ala Asp Gln Ala Val Leu Gln Leu Leu Pro Lys | |
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| acc tac att ctg acg tgt gag cat gat gtc ctc aga gac gat ggc atc | 1536 |
| Thr Tyr Ile Leu Thr Cys Glu His Asp Val Leu Arg Asp Asp Gly Ile | |
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| atg tat gcc aag cgt ttg gag agt gcc ggt gtg gag gtg acc ctg gat | 1584 |
| Met Tyr Ala Lys Arg Leu Glu Ser Ala Gly Val Glu Val Thr Leu Asp | |
| 515 520 525 | |
| cac ttt gag gat ggc ttt cac gga tgt atg att ttc act agc tgg ccc | 1632 |
| His Phe Glu Asp Gly Phe His Gly Cys Met Ile Phe Thr Ser Trp Pro | |
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| acc aac ttc tca gtg gga atc cgg act agg aat agt tac atc aag tgg | 1680 |
| Thr Asn Phe Ser Val Gly Ile Arg Thr Arg Asn Ser Tyr Ile Lys Trp | |
| 545 550 555 560 | |
| cta gat caa aac ctg taa aggagc aaaacttcca gaagcctcga gccctcttg | 1734 |
| Leu Asp Gln Asn Leu * | |
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| tccctctac ttgcgagtta tggaatttct attccataac tgaagtcttt atgataacct | 1854 |
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| tgggccaatc tctctgttct tgttatctta gccaaactata ctgataccta cagctacaga | 1974 |
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agg ctc ctc cgc aga cgc cac atg ccc ctg cgc ctg gcc atg gtg ggc      405
Arg Leu Leu Arg Arg Arg His Met Pro Leu Arg Leu Ala Met Val Gly
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tgc gcc ttt gtg ctc ttc ctc ttc ctc ctg cat agg gat gtg agc agc      453
Cys Ala Phe Val Leu Phe Leu Phe Leu Leu His Arg Asp Val Ser Ser
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aga gag gag gcc aca gag aag ccg tgg ctg aag tcc ctg gtg agc cgg      501
Arg Glu Glu Ala Thr Glu Lys Pro Trp Leu Lys Ser Leu Val Ser Arg
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aag gat cac gtc ctg gac ctc atg ctg gag gcc atg aac aac ctt aga      549
Lys Asp His Val Leu Asp Leu Met Leu Glu Ala Met Asn Asn Leu Arg
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Asp Ser Met Pro Lys Leu Gln Ile Arg Ala Pro Glu Ala Gln Gln Thr
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ctg ttc tcc ata aat cag tcc tgc ctc cct ggg ttc tat acc cca gct      645
Leu Phe Ser Ile Asn Gln Ser Cys Leu Pro Gly Phe Tyr Thr Pro Ala
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gaa ctg aag ccc ttc tgg gaa cgg cca cca cag gac ccc aat gcc cct      693
Glu Leu Lys Pro Phe Trp Glu Arg Pro Pro Gln Asp Pro Asn Ala Pro
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ggg gca gat gga aaa gca ttt cag aag agc aag tgg acc ccc ctg gag      741
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acc cag gaa aag gaa gaa ggc tat aag aag cac tgt ttc aat gcc ttt      789
Thr Gln Glu Lys Glu Glu Gly Tyr Lys Lys His Cys Phe Asn Ala Phe
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gcc agc gac cgg atc tcc ctg cag agg tcc ctg ggg cca gac acc cga      837
Ala Ser Asp Arg Ile Ser Leu Gln Arg Ser Leu Gly Pro Asp Thr Arg
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cca cct gag tgt gtg gac cag aag ttc cgg cgc tgc ccc cca ctg gcc      885
Pro Pro Glu Cys Val Asp Gln Lys Phe Arg Arg Cys Pro Pro Leu Ala
      165                                170                                175

acc acc agc gtg atc att gtg ttc cac aac gaa gcc tgg tcc aca ctg      933
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      180                                185                                190

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| | |
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| ttt gct ggt ggc ctc ttc tcc atc tcc aag tcc tac ttt gag cac atc Phe Ala Gly Gly Leu Phe Ser Ile Ser Lys Ser Tyr Phe Glu His Ile 355 360 365 | 1461 |
| ggt acc tat gat aat cag atg gag atc tgg gga ggg gag aac gtg gaa Gly Thr Tyr Asp Asn Gln Met Glu Ile Trp Gly Gly Glu Asn Val Glu 370 375 380 385 | 1509 |
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| ctg cag ctg agg gaa caa ctg cac tgt cac aac ttt tcc tgg tac ctg | 1797 |
| Leu Gln Leu Arg Glu Gln Leu His Cys His Asn Phe Ser Trp Tyr Leu | |
| 470 475 480 | |
| cac aat gtc tac cca gag atg ttt gtt cct gac ctg acg ccc acc ttc | 1845 |
| His Asn Val Tyr Pro Glu Met Phe Val Pro Asp Leu Thr Pro Thr Phe | |
| 485 490 495 | |
| tat ggt gcc atc aag aac ctc ggc acc aac caa tgc ctg gat gtg ggt | 1893 |
| Tyr Gly Ala Ile Lys Asn Leu Gly Thr Asn Gln Cys Leu Asp Val Gly | |
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| gag aac aac cgc ggg ggg aag ccc ctc atc atg tac tcc tgc cac ggc | 1941 |
| Glu Asn Asn Arg Gly Gly Lys Pro Leu Ile Met Tyr Ser Cys His Gly | |
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| ctt ggc ggc aac cag tac ttt gag tac aca act cag agg gac ctt cgc | 1989 |
| Leu Gly Gly Asn Gln Tyr Phe Glu Tyr Thr Thr Gln Arg Asp Leu Arg | |
| 530 535 540 545 | |
| cac aac atc gca aag cag ctg tgt cta cat gtc agc aag ggt gct ctg | 2037 |
| His Asn Ile Ala Lys Gln Leu Cys Leu His Val Ser Lys Gly Ala Leu | |
| 550 555 560 | |
| ggc ctt ggg agc tgt cac ttc act ggc aag aat agc cag gtc ccc aag | 2085 |
| Gly Leu Gly Ser Cys His Phe Thr Gly Lys Asn Ser Gln Val Pro Lys | |
| 565 570 575 | |
| gac gag gaa tgg gaa ttg gcc cag gat cag ctc atc agg aac tca gga | 2133 |
| Asp Glu Glu Trp Glu Leu Ala Gln Asp Gln Leu Ile Arg Asn Ser Gly | |
| 580 585 590 | |
| tct ggt acc tgc ctg aca tcc cag gac aaa aag cca gcc atg gcc ccc | 2181 |
| Ser Gly Thr Cys Leu Thr Ser Gln Asp Lys Lys Pro Ala Met Ala Pro | |
| 595 600 605 | |
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| Cys Asn Pro Ser Asp Pro His Gln Leu Trp Leu Phe Val * | |
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| | | Met | Ile | Asp | Glu | Leu | Asn | Lys | Gln | Val | Ser | Glu | Leu | | | |
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| Ser | Gln | Leu | Tyr | Lys | Glu | Ala | Gln | Ala | Glu | Leu | Glu | Asp | Tyr | Arg | Lys | |
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| agg | aaa | tct | cta | gag | gat | gtc | aca | gct | gaa | tat | atc | cat | aaa | gca | gag | 624 |
| Arg | Lys | Ser | Leu | Glu | Asp | Val | Thr | Ala | Glu | Tyr | Ile | His | Lys | Ala | Glu | |
| | 30 | | | | | 35 | | | | | 40 | | | | | |
| cat | gag | aaa | ctg | atg | caa | ttg | aca | aac | gtg | tcc | agg | gct | aaa | gca | gaa | 672 |
| His | Glu | Lys | Leu | Met | Gln | Leu | Thr | Asn | Val | Ser | Arg | Ala | Lys | Ala | Glu | |
| | 45 | | | | 50 | | | | 55 | | | | | 60 | | |
| gat | gca | ctg | tct | gaa | atg | aag | tct | cag | tat | tca | aaa | gtg | ttg | aat | gag | 720 |
| Asp | Ala | Leu | Ser | Glu | Met | Lys | Ser | Gln | Tyr | Ser | Lys | Val | Leu | Asn | Glu | |
| | | | | 65 | | | | 70 | | | | | 75 | | | |
| ttg | acc | cag | ctc | aaa | caa | ctg | gtg | gat | gca | caa | aaa | gag | aac | tct | gtc | 768 |
| Leu | Thr | Gln | Leu | Lys | Gln | Leu | Val | Asp | Ala | Gln | Lys | Glu | Asn | Ser | Val | |
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| tct | atc | aca | gaa | cat | ttg | caa | gtg | ata | acc | acg | ctg | cgg | act | gca | gca | 816 |
| Ser | Ile | Thr | Glu | His | Leu | Gln | Val | Ile | Thr | Thr | Leu | Arg | Thr | Ala | Ala | |
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| aaa | gag | atg | gaa | gaa | aaa | ata | agc | aat | ctt | aag | gaa | cac | ctt | gca | agc | 864 |
| Lys | Glu | Met | Glu | Glu | Lys | Ile | Ser | Asn | Leu | Lys | Glu | His | Leu | Ala | Ser | |
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| aag gaa gtg gaa gta gca aag ctg gag aaa caa ctc tta gaa gag aaa | 912 |
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| Ala Ala Met Thr Asp Ala Met Val Pro Arg Ser Ser Tyr Glu Lys Leu | |
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| cag tca tcc tta gag agt gaa gtg agt gtg ttg gca tcg aaa tta aag | 1008 |
| Gln Ser Ser Leu Glu Ser Glu Val Ser Val Leu Ala Ser Lys Leu Lys | |
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| Glu Ser Val Lys Glu Lys Glu Lys Val His Ser Glu Val Val Gln Ile | |
| 175 180 185 | |
| aga agt gag gtc tca cag gtg aaa aga gaa aag gaa aat att cag act | 1104 |
| Arg Ser Glu Val Ser Gln Val Lys Arg Glu Lys Glu Asn Ile Gln Thr | |
| 190 195 200 | |
| ctc ttg aaa tcc aaa gag caa gaa gta aat gaa ctt ctg caa aaa ttc | 1152 |
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| 225 230 235 | |
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| Lys Glu Val Thr Lys Leu Lys Glu Ala Leu Asn Ser Leu Ser Gln Leu | |
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| Ser Tyr Ser Thr Ser Ser Lys Arg Gln Ser Gln Gln Leu Glu Ala | |
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| Leu Gln Gln Gln Val Lys Gln Leu Gln Asn Gln Leu Ala Glu Cys Lys | |
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| Lys Gln His Gln Glu Val Ile Ser Val Tyr Arg Met His Leu Leu Tyr | |
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| Ile Leu Thr Met Cys Lys Asn Gln Ser Gln Lys Lys * | |
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tccccccgca gaaggaagtg atcacatcgg atgagctc      atg gcc cat ctt gga      413
                                   Met Ala His Leu Gly
                                   1                               5

aac tgc ctc ctg tcc atc aag ccc cag gag aag tca gag gga ctt cag      461
Asn Cys Leu Leu Ser Ile Lys Pro Gln Glu Lys Ser Glu Gly Leu Gln
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Leu Asn Phe Gln Gln Asn Val Asp Asp Ala Met Thr Val Leu Pro Lys
                                   25                               30                               35

ctg gcc aca ggt ctg gat gtc aat gtg cga ttc aca ggc gtc tct gat      557
Leu Ala Thr Gly Leu Asp Val Asn Val Arg Phe Thr Gly Val Ser Asp
                                   40                               45                               50

ttt gag tat aca ccc gag tgc agt gtc ttt gac ctg cta ggc ata cct      605
Phe Glu Tyr Thr Pro Glu Cys Ser Val Phe Asp Leu Leu Gly Ile Pro
                                   55                               60                               65

ctg tac cat ggc tgg ctt gtt gat cca cag cag agt cct gag gct gcg      653
Leu Tyr His Gly Trp Leu Val Asp Pro Gln Gln Ser Pro Glu Ala Ala
                                   70                               75                               80                               85

cgt gca gtt ggg aaa ctg agt tac aac cag ctg gtg gag agg atc atc      701
Arg Ala Val Gly Lys Leu Ser Tyr Asn Gln Leu Val Glu Arg Ile Ile
                                   90                               95                               100

acc tgc aaa cac tcc agt gac acc aac ctc gtg aca gaa ggc ctg att      749
Thr Cys Lys His Ser Ser Asp Thr Asn Leu Val Thr Glu Gly Leu Ile
                                   105                               110                               115

gca gag cag ttc ctg gag acc acc gcg gcc cat ctg acc tac cac gga      797
Ala Glu Gln Phe Leu Glu Thr Thr Ala Ala His Leu Thr Tyr His Gly
                                   120                               125                               130

ctg tgt gag ctg aca gca gct gct aag gag ggt gaa ctt agc gtc ttt      845
Leu Cys Glu Leu Thr Ala Ala Ala Lys Glu Gly Glu Leu Ser Val Phe
                                   135                               140                               145

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Phe Arg Asn Asn His Phe Ser Thr Met Thr Lys His Lys Ser His Leu
                                   150                               155                               160                               165

tac cta ctg gtc act gac cag ggc ttt cta cag gag gag caa gtc gta      941
Tyr Leu Leu Val Thr Asp Gln Gly Phe Leu Gln Glu Glu Gln Val Val
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tgg gag agc ctg cac aat gtg gat gga gac agc tgc ttt tgt gac tct      989

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| | | | | | | | | | | | | | | | | | |
|-------------|-------------|------------|------------|------------|-------------|-----|-----|-----|-----|-----|-----|------|------------|-----|-----|--|------|
| Trp | Glu | Ser | Leu | His | Asn | Val | Asp | Gly | Asp | Ser | Cys | Phe | Cys | Asp | Ser | | |
| | | | 185 | | | | | 190 | | | | | 195 | | | | |
| gac | ttt | cac | ctg | agt | cat | tcc | ctg | ggc | aag | ggg | cct | gga | gca | gaa | ggt | | 1037 |
| Asp | Phe | His | Leu | Ser | His | Ser | Leu | Gly | Lys | Gly | Pro | Gly | Ala | Glu | Gly | | |
| | | 200 | | | | | 205 | | | | | 210 | | | | | |
| ggg | agt | ggc | tcc | cca | gaa | aag | cag | ctg | cag | gta | gac | cag | gac | tac | ctg | | 1085 |
| Gly | Ser | Gly | Ser | Pro | Glu | Lys | Gln | Leu | Gln | Val | Asp | Gln | Asp | Tyr | Leu | | |
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| att | gct | ctg | tcc | ctg | cag | cag | caa | cag | cca | cga | ggc | ccg | ctg | ggg | ctt | | 1133 |
| Ile | Ala | Leu | Ser | Leu | Gln | Gln | Gln | Gln | Pro | Arg | Gly | Pro | Leu | Gly | Leu | | |
| 230 | | | | | 235 | | | | | 240 | | | | | 245 | | |
| acc | gac | ttg | gag | ctg | gcc | cag | cag | ctt | cag | caa | gag | gag | tat | caa | cag | | 1181 |
| Thr | Asp | Leu | Glu | Leu | Ala | Gln | Gln | Leu | Gln | Gln | Glu | Glu | Tyr | Gln | Gln | | |
| | | | 250 | | | | | 255 | | | | | 260 | | | | |
| cag | cag | gca | gcg | cag | cca | gtg | cgg | atg | cgg | acg | cgg | gtc | ctg | tca | ctg | | 1229 |
| Gln | Gln | Ala | Ala | Gln | Pro | Val | Arg | Met | Arg | Thr | Arg | Val | Leu | Ser | Leu | | |
| | | 265 | | | | | 270 | | | | | 275 | | | | | |
| cag | ggg | aga | gga | gcc | aca | tct | gga | cgc | cca | gcc | ggg | gag | cgt | cgg | cag | | 1277 |
| Gln | Gly | Arg | Gly | Ala | Thr | Ser | Gly | Arg | Pro | Ala | Gly | Glu | Arg | Arg | Gln | | |
| | 280 | | | | | | 285 | | | | | 290 | | | | | |
| agg | ccg | aag | cac | gag | tca | gac | tgc | att | ctg | ctg | tag | ctct | gccccagtgc | | | | 1327 |
| Arg | Pro | Lys | His | Glu | Ser | Asp | Cys | Ile | Leu | Leu | * | | | | | | |
| | 295 | | | | | 300 | | | | | 305 | | | | | | |
| caggctggcc | tgcccccttct | tccagaggct | atggctagtt | ggcttgctcc | cccgccctcca | | | | | | | | | | | | 1387 |
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| accaggggca | acactaggat | tggtgggttt | ctggttctca | actcccggtc | cctgaatagt | | | | | | | | | | | | 1567 |
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| atg | gag | ttt | gct | gct | gaa | aat | gaa | ggg | aag | tct | ggg | gga | ggt | ctc | cac | | 48 |
| Met | Glu | Phe | Ala | Ala | Glu | Asn | Glu | Gly | Lys | Ser | Gly | Gly | Gly | Leu | His | | |
| 1 | | | | | 5 | | | | 10 | | | | | 15 | | | |

| | |
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| agc gta gct gag ggg gtg cgg cta agt cca gag cct ggc agg gag gga | 96 |
| Ser Val Ala Glu Gly Val Arg Leu Ser Pro Glu Pro Gly Arg Glu Gly | |
| 20 25 30 | |
| gta agg gac tta gca ggg gcg gag gag ttc ggc ggc gga gag gag ggg | 144 |
| Val Arg Asp Leu Ala Gly Ala Glu Glu Phe Gly Gly Gly Glu Glu Gly | |
| 35 40 45 | |
| aca ggg ctg aca ggg ata aag gag ata ggg gat gga gag gaa gga agt | 192 |
| Thr Gly Leu Thr Gly Ile Lys Glu Ile Gly Asp Gly Glu Glu Gly Ser | |
| 50 55 60 | |
| gga caa agg cca gag gaa ata ccg atg gac cta acg gta gtg aag cag | 240 |
| Gly Gln Arg Pro Glu Glu Ile Pro Met Asp Leu Thr Val Val Lys Gln | |
| 65 70 75 80 | |
| gaa att ata gac tgg cca ggt aca gaa ggc agg ttg gct ggc cag tgg | 288 |
| Glu Ile Ile Asp Trp Pro Gly Thr Glu Gly Arg Leu Ala Gly Gln Trp | |
| 85 90 95 | |
| gta gaa cag gag gtg gag gat agg cct gag gtg aag gat gag aac gca | 336 |
| Val Glu Gln Glu Val Glu Asp Arg Pro Glu Val Lys Asp Glu Asn Ala | |
| 100 105 110 | |
| ggc gta ttg gag gtg aag cag gag acg gat agt agt tta gtg gta aaa | 384 |
| Gly Val Leu Glu Val Lys Gln Glu Thr Asp Ser Ser Leu Val Val Lys | |
| 115 120 125 | |
| gaa gcg aag gtg ggt gaa cca gag gta aag gaa gag aag gta aag gaa | 432 |
| Glu Ala Lys Val Gly Glu Pro Glu Val Lys Glu Glu Lys Val Lys Glu | |
| 130 135 140 | |
| gag gta atg gac tgg tca gaa gtg aag gaa gag aag gat aac ttg gag | 480 |
| Glu Val Met Asp Trp Ser Glu Val Lys Glu Glu Lys Asp Asn Leu Glu | |
| 145 150 155 160 | |
| ata aaa cag gag gag aag ttt gtt ggt caa tgc ata aaa gag gaa ttg | 528 |
| Ile Lys Gln Glu Glu Lys Phe Val Gly Gln Cys Ile Lys Glu Glu Leu | |
| 165 170 175 | |
| atg cat gga gag tgt gta aaa gaa gag aag gat ttc ctg aag aaa gaa | 576 |
| Met His Gly Glu Cys Val Lys Glu Glu Lys Asp Phe Leu Lys Lys Glu | |
| 180 185 190 | |
| atc gtg gat gat aca aag gtg aaa gaa gag cct ccg ata aat cac ccg | 624 |
| Ile Val Asp Asp Thr Lys Val Lys Glu Glu Pro Pro Ile Asn His Pro | |
| 195 200 205 | |
| gtg ggc tgc aag cgg aaa ctg gcc atg tca agg tgt gag act tgt ggt | 672 |
| Val Gly Cys Lys Arg Lys Leu Ala Met Ser Arg Cys Glu Thr Cys Gly | |
| 210 215 220 | |
| aca gaa gaa gca aag tac aga tgt cca cgt tgt atg cga tat tcc tgc | 720 |
| Thr Glu Glu Ala Lys Tyr Arg Cys Pro Arg Cys Met Arg Tyr Ser Cys | |
| 225 230 235 240 | |
| agt ttg ccc tgt gta aag aaa cac aaa gca gaa ctg aca tgt aat gga | 768 |
| Ser Leu Pro Cys Val Lys Lys His Lys Ala Glu Leu Thr Cys Asn Gly | |
| 245 250 255 | |
| gtt cga gat aaa act gca tac att tca ata caa cag ttt act gaa atg | 816 |
| Val Arg Asp Lys Thr Ala Tyr Ile Ser Ile Gln Gln Phe Thr Glu Met | |
| 260 265 270 | |

| | |
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| aat ctc cta agt gat tat cga ttt ttg gaa gat gtg gca aga aca gcg Asn Leu Leu Ser Asp Tyr Arg Phe Leu Glu Asp Val Ala Arg Thr Ala 275 280 285 | 864 |
| gac cat att tct aga gat gct ttt ttg aag aga cca ata agc aat aaa Asp His Ile Ser Arg Asp Ala Phe Leu Lys Arg Pro Ile Ser Asn Lys 290 295 300 | 912 |
| tat atg tac ttt atg aaa aat cgt gcc cgg agg caa ggt att aac tta Tyr Met Tyr Phe Met Lys Asn Arg Ala Arg Arg Gln Gly Ile Asn Leu 305 310 315 320 | 960 |
| aaa ctt cta ccc aat gga ttc acc aag agg aag gag aat tca acc ttt Lys Leu Leu Pro Asn Gly Phe Thr Lys Arg Lys Glu Asn Ser Thr Phe 325 330 335 | 1008 |
| ttt gat aag aaa aaa caa cag ttt tgt tgg cat gtg aag ctc cag ttt Phe Asp Lys Lys Lys Gln Gln Phe Cys Trp His Val Lys Leu Gln Phe 340 345 350 | 1056 |
| cct caa agt caa gct gag tac ata gaa aaa aga gta cca gat gat aaa Pro Gln Ser Gln Ala Glu Tyr Ile Glu Lys Arg Val Pro Asp Asp Lys 355 360 365 | 1104 |
| act att aat gaa atc cta aaa cct tac att gat cct gaa aag tct gat Thr Ile Asn Glu Ile Leu Lys Pro Tyr Ile Asp Pro Glu Lys Ser Asp 370 375 380 | 1152 |
| cct gta att cgt caa agg ttg aaa gcc tac att cgc tct cag act ggg Pro Val Ile Arg Gln Arg Leu Lys Ala Tyr Ile Arg Ser Gln Thr Gly 385 390 395 400 | 1200 |
| gtt cag att tta atg aag att gaa tat atg cag caa aat tta gta aga Val Gln Ile Leu Met Lys Ile Glu Tyr Met Gln Gln Asn Leu Val Arg 405 410 415 | 1248 |
| tat tat gaa cta gat cct tat aaa agt ctc cta gac aat ttg agg aac Tyr Tyr Glu Leu Asp Pro Tyr Lys Ser Leu Leu Asp Asn Leu Arg Asn 420 425 430 | 1296 |
| aaa gtg atc att gag tat cca aca tta cat gtg gta ttg aaa gga tcc Lys Val Ile Ile Glu Tyr Pro Thr Leu His Val Val Leu Lys Gly Ser 435 440 445 | 1344 |
| aat aat gac atg aaa gtt ctt cac caa gtg aag agt gaa tct acc aag Asn Asn Asp Met Lys Val Leu His Gln Val Lys Ser Glu Ser Thr Lys 450 455 460 | 1392 |
| aac gtt ggc aat gaa aat tga gc attttttctg gaagaagaaa gtgaaaactt Asn Val Gly Asn Glu Asn * 465 470 | 1445 |
| ccagacaact gcagcagact ctgcattgat gggctgttgg ctgattgggg tattgtcaat | 1505 |
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| attccataaaa ctgaaaactt tttttttctt ttttctttct ttttttgaga tggggctcttg | 1745 |
| gagtgcgaagt ggtatgagca tagcttcctc aaattcctgg gctcgaatgg tcctctcact | 1805 |

1996

| | |
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| gtc agc agc acc tcc ctg gac acg ctc tat acc agc tcc agc cca tct | 783 |
| Val Ser Ser Thr Ser Leu Asp Thr Leu Tyr Thr Ser Ser Ser Pro Ser | |
| 140 145 150 155 | |
| gaa cca ggc tcc agc tgc tca ccc aca ccc cca cct gtg ccc cgc cga | 831 |
| Glu Pro Gly Ser Ser Cys Ser Pro Thr Pro Pro Val Pro Arg Arg | |
| 160 165 170 | |
| ggc acc cac acc acc gtg tcc caa gtc cag ccc cct ccc tcc aag gca | 879 |
| Gly Thr His Thr Thr Val Ser Gln Val Gln Pro Pro Pro Ser Lys Ala | |
| 175 180 185 | |
| tca gca cct gaa ccc cct gca gaa gaa gaa gtg gca act ggt aca acc | 927 |
| Ser Ala Pro Glu Pro Pro Ala Glu Glu Glu Val Ala Thr Gly Thr Thr | |
| 190 195 200 | |
| tca gcc tct gat gac ctg gaa gcc ctg ggt aca ctg agc ctg ggg acc | 975 |
| Ser Ala Ser Asp Asp Leu Glu Ala Leu Gly Thr Leu Ser Leu Gly Thr | |
| 205 210 215 | |
| aca gag gag aag gca gca gct gag gcg gct gtg ccc agg acc att ggg | 1023 |
| Thr Glu Glu Lys Ala Ala Ala Glu Ala Ala Val Pro Arg Thr Ile Gly | |
| 220 225 230 235 | |
| gcc gag ctg atg gag ctg gtg cgg aga aac act ggc ctg agc cac gaa | 1071 |
| Ala Glu Leu Met Glu Leu Val Arg Arg Asn Thr Gly Leu Ser His Glu | |
| 240 245 250 | |
| tta tgc cgg gtg gcc atc ggc atc ata gtg ggt cac atc cag gcc tcg | 1119 |
| Leu Cys Arg Val Ala Ile Gly Ile Ile Val Gly His Ile Gln Ala Ser | |
| 255 260 265 | |
| gtg ccg gcc agc tca cca gtc atg gag cag gtc ctc ctc tca ctc gta | 1167 |
| Val Pro Ala Ser Ser Pro Val Met Glu Gln Val Leu Leu Ser Leu Val | |
| 270 275 280 | |
| gag ggc aag gac ctc agc atg gcc ctg ccc tca ggg cag gtc tgc cac | 1215 |
| Glu Gly Lys Asp Leu Ser Met Ala Leu Pro Ser Gly Gln Val Cys His | |
| 285 290 295 | |
| gac cag cag agg ctg gag gtg atc ttt gca gac ctg gct cgc cgg aag | 1263 |
| Asp Gln Gln Arg Leu Glu Val Ile Phe Ala Asp Leu Ala Arg Arg Lys | |
| 300 305 310 315 | |
| gac gac gcc cag cag cgc agt tgg gca cta tat gag gat gag ggt gtc | 1311 |
| Asp Asp Ala Gln Gln Arg Ser Trp Ala Leu Tyr Glu Asp Glu Gly Val | |
| 320 325 330 | |
| atc cgc tgc tac cta gag gag ctg ctg cat att ctg act gat gca gac | 1359 |
| Ile Arg Cys Tyr Leu Glu Glu Leu Leu His Ile Leu Thr Asp Ala Asp | |
| 335 340 345 | |
| cct gaa gtt tgc aag aaa atg tgc aag aga aac gag ttc gag tct gtc | 1407 |
| Pro Glu Val Cys Lys Lys Met Cys Lys Arg Asn Glu Phe Glu Ser Val | |
| 350 355 360 | |
| ctg gcc ttg gtg gcc tat tac caa atg gaa cac cga gca tca ctg cgg | 1455 |
| Leu Ala Leu Val Ala Tyr Tyr Gln Met Glu His Arg Ala Ser Leu Arg | |
| 365 370 375 | |
| ctg ctg ctc ctc aag tgc ttt ggc gcc atg tgc agc ctg gat gca gcc | 1503 |
| Leu Leu Leu Leu Lys Cys Phe Gly Ala Met Cys Ser Leu Asp Ala Ala | |
| 380 385 390 395 | |

| | |
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| ttc tcc gag aag ctg ttg ttg ctc ctg aac aga ggg gat gac cct gtg Phe Ser Glu Lys Leu Leu Leu Leu Leu Asn Arg Gly Asp Asp Pro Val 510 515 520 | 1887 |
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| ctg cag gac gtg ttt ggc agc ccg gcc aca gct gcc atc ttc tac cac Leu Gln Asp Val Phe Gly Ser Pro Ala Thr Ala Ala Ile Phe Tyr His 540 545 550 555 | 1983 |
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| ctg tca cca gga gac aag ctg cgc atg gag tac ctc tcc ctg atg cat Leu Ser Pro Gly Asp Lys Leu Arg Met Glu Tyr Leu Ser Leu Met His 575 580 585 | 2079 |
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| ccc cag tgc cag atg gac cgc atg att gtc cga gag atg tgc aag gaa Pro Gln Cys Gln Met Asp Arg Met Ile Val Arg Glu Met Cys Lys Glu 620 625 630 635 | 2223 |
| ttc ctg gtg ctg ggg gag gct ccc agc tag c accttgctgt cctcccttcc Phe Leu Val Leu Gly Glu Ala Pro Ser * 640 645 | 2274 |

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Met Leu Lys Ser Met
1 5
gtt ctg tgg tta gga gaa cag gta caa agc ttg cag ttg cag cag caa 163
Val Leu Trp Leu Gly Glu Gln Val Gln Ser Leu Gln Leu Gln Gln
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Leu Arg His His Phe Asn His Ile His Ile Cys Val Thr Asn Ser Glu
25 30 35
tat aac caa agt gag tat ccg tgg gac ctt gtg aaa gcc cat ttg caa 259
Tyr Asn Gln Ser Glu Tyr Pro Trp Asp Leu Val Lys Ala His Leu Gln
40 45 50
gga gct ttc aca tcc aac atc acc ttt gat att agt gaa tta caa aac 307
Gly Ala Phe Thr Ser Asn Ile Thr Phe Asp Ile Ser Glu Leu Gln Asn
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Lys Ile Leu Asp Leu Asn Arg His Thr Gln Glu Phe Gln Pro Ser Leu
70 75 80 85

gaa gac tgg act gaa ttc cag gaa ggc ctg gag agc ctc aac cct tgg 403
 Glu Asp Trp Thr Glu Phe Gln Glu Gly Leu Glu Ser Leu Asn Pro Trp
 90 95 100

acc tat cta aag tac cac agt aac atc tta tat gta gtt ctt gga gta 451
 Thr Tyr Leu Lys Tyr His Ser Asn Ile Leu Tyr Val Val Leu Gly Val
 105 110 115

atg ttg ttt tgt ctc tgt ctt ctg ttt ata gtc tgt aaa atc gga tgg 499
 Met Leu Phe Cys Leu Cys Leu Leu Phe Ile Val Cys Lys Ile Gly Trp
 120 125 130

acc gcc aat cgg aga atg aga gct gcc cag cct ggt ctt aca ttc ttt 547
 Thr Ala Asn Arg Arg Met Arg Ala Ala Gln Pro Gly Leu Thr Phe Phe
 135 140 145

caa tta att cat aaa cag ggg gat atg cag gga gcc gaa ggc cca tgg 595
 Gln Leu Ile His Lys Gln Gly Asp Met Gln Gly Ala Glu Gly Pro Trp
 150 155 160 165

gac gtg acc aac tca gca ttc cac tgg agg cta tat gat caa aca gca 643
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 cggcagcagc ggcagcggct atgggtgtggc cgcctcgattc tcccagtgcc tggctgagtt 180
 tcggacgtgg ttaagaacca actgggttgag gttcaatgca gacaagacgg atgtgatgct 240
 gtagaaaatg tgcattcag atg ttt atg ttt aat tgg ttt aca gac tgt ctg 291
 Met Phe Met Phe Asn Trp Phe Thr Asp Cys Leu
 1 5 10

tgg act ctt ttc ctg tca aat tac cag cca tct gtt gaa tct tca agt 339
 Trp Thr Leu Phe Leu Ser Asn Tyr Gln Pro Ser Val Glu Ser Ser Ser
 15 20 25

cca gga ggt tca gca aca tca gat gac cat gaa ttt gat cca tca gct 387
 Pro Gly Gly Ser Ala Thr Ser Asp Asp His Glu Phe Asp Pro Ser Ala
 30 35 40

gac atg ctg gtt cat gat ttt gat gat gaa cga aca tta gaa gag gaa 435
 Asp Met Leu Val His Asp Phe Asp Asp Glu Arg Thr Leu Glu Glu Glu

| 45 | 50 | 55 | |
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| gaa atg atg gaa gga gaa aca aac ttc agc tct gaa ata gaa gat ctt Glu Met Met Glu Gly Glu Thr Asn Phe Ser Ser Glu Ile Glu Asp Leu 60 65 70 75 | | | 483 |
| gca agg gaa ggc gac atg cca att cat gaa ctt ctc agc ctt tat ggt Ala Arg Glu Gly Asp Met Pro Ile His Glu Leu Leu Ser Leu Tyr Gly 80 85 90 | | | 531 |
| tat ggt agt act gtt cga cta cct gaa gaa gat gag gaa gag gaa gaa Tyr Gly Ser Thr Val Arg Leu Pro Glu Glu Asp Glu Glu Glu Glu Glu 95 100 105 | | | 579 |
| gag gaa gaa gaa ggt gaa gat gat gaa gat gct gat aat gat gac aac Glu Glu Glu Glu Gly Glu Asp Asp Glu Asp Ala Asp Asn Asp Asp Asn 110 115 120 | | | 627 |
| agt ggc tgt agt ggg gaa aat aaa gag gag aat ata aag gat tca tca Ser Gly Cys Ser Gly Glu Asn Lys Glu Glu Asn Ile Lys Asp Ser Ser 125 130 135 | | | 675 |
| ggt cag gag gat gaa act cag tct tcc aat gat gat cca tca caa tct Gly Gln Glu Asp Glu Thr Gln Ser Ser Asn Asp Asp Pro Ser Gln Ser 140 145 150 155 | | | 723 |
| gtt gct tct caa gat gcc cag gaa ata atc cgc cca cgt cga tgt aaa Val Ala Ser Gln Asp Ala Gln Glu Ile Ile Arg Pro Arg Arg Cys Lys 160 165 170 | | | 771 |
| tat ttt gat aca aat agt gaa gta gaa gaa gaa tct gaa gaa gat gaa Tyr Phe Asp Thr Asn Ser Glu Val Glu Glu Glu Ser Glu Glu Asp Glu 175 180 185 | | | 819 |
| gat tat att cca tca gaa gac tgg aaa aag gag att atg gtg ggc tcc Asp Tyr Ile Pro Ser Glu Asp Trp Lys Lys Glu Ile Met Val Gly Ser 190 195 200 | | | 867 |
| atg ttt caa gca gaa att cca gtt ggc att tgt aga tac aaa gaa aat Met Phe Gln Ala Glu Ile Pro Val Gly Ile Cys Arg Tyr Lys Glu Asn 205 210 215 | | | 915 |
| gaa aaa gta tat gaa aat gat gat cag ctc ctg tgg gac cct gag tac Glu Lys Val Tyr Glu Asn Asp Asp Gln Leu Leu Trp Asp Pro Glu Tyr 220 225 230 235 | | | 963 |
| tta cca gaa gat aaa gtg att ata ttt ctt aaa gat gca tct aga aga Leu Pro Glu Asp Lys Val Ile Ile Phe Leu Lys Asp Ala Ser Arg Arg 240 245 250 | | | 1011 |
| aca ggt gat gag aag ggt gta gaa gca att cct gaa gga tct cac ata Thr Gly Asp Glu Lys Gly Val Glu Ala Ile Pro Glu Gly Ser His Ile 255 260 265 | | | 1059 |
| aaa gac aat gaa cag gct tta tat gaa ttg gtt aaa tgc aat ttt gat Lys Asp Asn Glu Gln Ala Leu Tyr Glu Leu Val Lys Cys Asn Phe Asp 270 275 280 | | | 1107 |
| aca gaa gaa gca ttg aga aga tta aga ttt aat gta aaa gca gct aga Thr Glu Glu Ala Leu Arg Arg Leu Arg Phe Asn Val Lys Ala Ala Arg 285 290 295 | | | 1155 |
| gag gaa tta tct gtt tgg aca gag gaa gag tgt aga aat ttt gaa caa Glu Glu Leu Ser Val Trp Thr Glu Glu Glu Cys Arg Asn Phe Glu Gln | | | 1203 |

| 300 | 305 | 310 | 315 | |
|---|-----|-----|-----|------|
| ggg ctg aag gcc tat gga aag gat ttt cat ttg att cag gct aat aaa | | | | 1251 |
| Gly Leu Lys Ala Tyr Gly Lys Asp Phe His Leu Ile Gln Ala Asn Lys | | | | |
| 320 | | 325 | 330 | |
| gtc cga aca agg tca gtt ggt gaa tgt gta gca ttc tat tac atg tgg | | | | 1299 |
| Val Arg Thr Arg Ser Val Gly Glu Cys Val Ala Phe Tyr Tyr Met Trp | | | | |
| 335 | | 340 | 345 | |
| aaa aaa tct gaa cgt tat gat ttc ttt gct cag caa aca cga ttt gga | | | | 1347 |
| Lys Lys Ser Glu Arg Tyr Asp Phe Phe Ala Gln Gln Thr Arg Phe Gly | | | | |
| 350 | | 355 | 360 | |
| aag aag aaa tat aat ctt cat cct ggt gta acg gat tac atg gat cgt | | | | 1395 |
| Lys Lys Lys Tyr Asn Leu His Pro Gly Val Thr Asp Tyr Met Asp Arg | | | | |
| 365 | | 370 | 375 | |
| ctt cta gac gaa agt gaa agt gct gca tct agt cga gca caa tcc cct | | | | 1443 |
| Leu Leu Asp Glu Ser Glu Ser Ala Ala Ser Ser Arg Ala Gln Ser Pro | | | | |
| 380 | | 385 | 390 | 395 |
| ccc cca act gca tca aac agt agt aac agc cag tct gag aaa gaa gat | | | | 1491 |
| Pro Pro Thr Ala Ser Asn Ser Ser Asn Ser Gln Ser Glu Lys Glu Asp | | | | |
| 400 | | 405 | 410 | |
| ggc act gta agc act gct aat caa aat ggt aag caa cca gag aaa cat | | | | 1539 |
| Gly Thr Val Ser Thr Ala Asn Gln Asn Gly Lys Gln Pro Glu Lys His | | | | |
| 415 | | 420 | 425 | |
| ttc tct ttc ttc ata ata agg gac act ttc ttg cag tga cttgggaaat | | | | 1588 |
| Phe Ser Phe Phe Ile Ile Arg Asp Thr Phe Leu Gln * | | | | |
| 430 | | 435 | 440 | |
| tccgtttggg tttctattaa acttccagag cagaaagtaa aaaatgataa cacatgagac | | | | 1648 |
| aaacataaca tcagcatata tatatactaa cagaatacaa agtgattgga catcactaaa | | | | 1708 |
| aagtaatttt aataaagcct actgtcaaca gtgactattt cttgtaagaa atttgttctt | | | | 1768 |
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| cctgctagge tgcggcggca tggccccgcgc gcccggcgcg acctctgcgg attgcatcgg | 180 |
| tgtgtggcgg cggggcatgc ccagagcacc gggcacggcc ttca atg ggc gag gac | 236 |
| Met Gly Glu Asp | |

| | |
|---|------|
| acg gac acg cgg aaa att aac cac agc ttc ctg cgg gac cac agc tat | 284 |
| Thr Asp Thr Arg Lys Ile Asn His Ser Phe Leu Arg Asp His Ser Tyr | |
| 5 10 15 20 | |
| gtg act gaa gct gac atc atc tct acc gtt gag ttc aac cac acg gga | 332 |
| Val Thr Glu Ala Asp Ile Ile Ser Thr Val Glu Phe Asn His Thr Gly | |
| 25 30 35 | |
| gag ctg ctg gcc aca ggt gac aag ggc ggc cgg gtc gtc atc ttc cag | 380 |
| Glu Leu Leu Ala Thr Gly Asp Lys Gly Gly Arg Val Val Ile Phe Gln | |
| 40 45 50 | |
| cgg gaa cca gag agt aaa aat gcg ccc cac agc cag ggc gaa tac gac | 428 |
| Arg Glu Pro Glu Ser Lys Asn Ala Pro His Ser Gln Gly Glu Tyr Asp | |
| 55 60 65 | |
| gtg tac agc act ttc cag agc cac gag ccg gag ttt gac tat ctc aag | 476 |
| Val Tyr Ser Thr Phe Gln Ser His Glu Pro Glu Phe Asp Tyr Leu Lys | |
| 70 75 80 | |
| agc ctg gag ata gag gag aag atc aac aag atc aag tgg ctc cca cag | 524 |
| Ser Leu Glu Ile Glu Glu Lys Ile Asn Lys Ile Lys Trp Leu Pro Gln | |
| 85 90 95 100 | |
| cag aac gcc gcc cac tca ctc ctg tcc acc aac gat aaa act atc aaa | 572 |
| Gln Asn Ala Ala His Ser Leu Leu Ser Thr Asn Asp Lys Thr Ile Lys | |
| 105 110 115 | |
| tta tgg aag att acc gaa cga gat aaa agg ccc gaa gga tac aac ctg | 620 |
| Leu Trp Lys Ile Thr Glu Arg Asp Lys Arg Pro Glu Gly Tyr Asn Leu | |
| 120 125 130 | |
| aag gat gaa gag ggg aaa ctt aag gac ctg tcc acg gtg acg tca ctg | 668 |
| Lys Asp Glu Glu Gly Lys Leu Lys Asp Leu Ser Thr Val Thr Ser Leu | |
| 135 140 145 | |
| cag gtg cca gtg ctg aag ccc atg gat ctg atg gtg gag gtg agc cct | 716 |
| Gln Val Pro Val Leu Lys Pro Met Asp Leu Met Val Glu Val Ser Pro | |
| 150 155 160 | |
| cgg agg atc ttt gcc aat ggc cac acc tac cac atc aac tcc atc tcc | 764 |
| Arg Arg Ile Phe Ala Asn Gly His Thr Tyr His Ile Asn Ser Ile Ser | |
| 165 170 175 180 | |
| gtc aac agt gac tgc gag acc tac atg tcg gcg gat gac ctg cgc atc | 812 |
| Val Asn Ser Asp Cys Glu Thr Tyr Met Ser Ala Asp Asp Leu Arg Ile | |
| 185 190 195 | |
| aac ctc tgg cac ctg gcc atc acc gac agg agc ttc aac atc gtg gac | 860 |
| Asn Leu Trp His Leu Ala Ile Thr Asp Arg Ser Phe Asn Ile Val Asp | |
| 200 205 210 | |
| atc aag ccg gcc aac atg gag gac ctt acg gag gtg atc aca gca tct | 908 |
| Ile Lys Pro Ala Asn Met Glu Asp Leu Thr Glu Val Ile Thr Ala Ser | |
| 215 220 225 | |
| gag ttc cat ccg cac cac tgc aac ctc ttc gtc tac agc agc agc aag | 956 |
| Glu Phe His Pro His His Cys Asn Leu Phe Val Tyr Ser Ser Ser Lys | |
| 230 235 240 | |
| ggc tcc ctg cgg ctc tgc gac atg ccg gca gct gcc ctg tgt gac aag | 1004 |
| Gly Ser Leu Arg Leu Cys Asp Met Arg Ala Ala Ala Leu Cys Asp Lys | |
| 245 250 255 260 | |

| | |
|---|------|
| cat tcc aag ctc ttt gaa gag cct gag gac ccc agt aac cgc tca ttc | 1052 |
| His Ser Lys Leu Phe Glu Glu Pro Glu Asp Pro Ser Asn Arg Ser Phe | |
| 265 270 275 | |
| ttc tcg gaa atc atc tcc tcc gtg tcc gac gtg aag ttc agc cac agc | 1100 |
| Phe Ser Glu Ile Ile Ser Ser Val Ser Asp Val Lys Phe Ser His Ser | |
| 280 285 290 | |
| ggc cgc tac atg ctc acc cgg gac tac ctt aca gtc aag gtc tgg gac | 1148 |
| Gly Arg Tyr Met Leu Thr Arg Asp Tyr Leu Thr Val Lys Val Trp Asp | |
| 295 300 305 | |
| ctg aac atg gag gca aga ccc ata gag acc tac cag gtc cat gac tac | 1196 |
| Leu Asn Met Glu Ala Arg Pro Ile Glu Thr Tyr Gln Val His Asp Tyr | |
| 310 315 320 | |
| ctt cgg agc aag ctc tgt tcc ctg tac gag aac gac tgc att ttc gac | 1244 |
| Leu Arg Ser Lys Leu Cys Ser Leu Tyr Glu Asn Asp Cys Ile Phe Asp | |
| 325 330 335 340 | |
| aag ttt gaa tgt gcc tgg aac ggg agc gac agc gtc atc atg acc ggg | 1292 |
| Lys Phe Glu Cys Ala Trp Asn Gly Ser Asp Ser Val Ile Met Thr Gly | |
| 345 350 355 | |
| acc tac aac aac ttc ttc cgc atg ttc gat cgg aac acc aag cgg gac | 1340 |
| Thr Tyr Asn Asn Phe Phe Arg Met Phe Asp Arg Asn Thr Lys Arg Asp | |
| 360 365 370 | |
| gtg acc ctg gag gcc tcg agg gaa agc agc aag ccc cgg gct gtg ctc | 1388 |
| Val Thr Leu Glu Ala Ser Arg Glu Ser Ser Lys Pro Arg Ala Val Leu | |
| 375 380 385 | |
| aag cca cgg cgc gtg tgc gtg ggg ggc aag cgc cgg cgt gat gac atc | 1436 |
| Lys Pro Arg Arg Val Cys Val Gly Gly Lys Arg Arg Arg Asp Asp Ile | |
| 390 395 400 | |
| agt gtg gac agc ttg gac ttc acc aag aag atc ctg cac acg gcc tgg | 1484 |
| Ser Val Asp Ser Leu Asp Phe Thr Lys Lys Ile Leu His Thr Ala Trp | |
| 405 410 415 420 | |
| cac ccg gct gag aac atc att gcc att gcc gcc acc aac aac ctg tac | 1532 |
| His Pro Ala Glu Asn Ile Ile Ala Ile Ala Ala Thr Asn Asn Leu Tyr | |
| 425 430 435 | |
| atc ttc cag gac aag gta aac tct gac atg cac tag gtat gtgcagatcc | 1582 |
| Ile Phe Gln Asp Lys Val Asn Ser Asp Met His * | |
| 440 445 | |
| cgccccctgc caccagcct catgcaagtc atccccgaca tgaccttcac gaccgcaatg | 1642 |
| caaggagggg aagaaagtca cagcactgat gaggacagct gcagaggtgg cagtgtgtgg | 1702 |
| acacaggaag tttgggcccc ctccctgccc cagctttcct aggccagaat tgtgtttggc | 1762 |
| agtaattgtc tgttttaaaa aataaaaagg agaggaagcg ttcaccgcca caaatcataa | 1822 |
| aatggacatg actgtggagt cttacagttc agggttcttt cattcacgtc ccttcctgtc | 1882 |
| tcggtctgcy gtctttacca catcaatagg actttttatg cgtccgggtt aatttttcac | 1942 |
| tccagtgtgt cctgttgcag ggaccggagc tgatgggagc tgcttctccc ccatgcctca | 2002 |
| ctggtcccag atcagggctc cagggacaga tgatgagtct caaacgagcc agccaggggt | 2062 |

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 gactgtcaga a atg agt ttt tca ctg aac ttc acc ctg ccg gcg aac aca 170
 Met Ser Phe Ser Leu Asn Phe Thr Leu Pro Ala Asn Thr
 1 5 10
 acg tcc tct cct gtc aca ggt ggg aaa gaa acg gac tgt ggg ccc tct 218
 Thr Ser Ser Pro Val Thr Gly Gly Lys Glu Thr Asp Cys Gly Pro Ser
 15 20 25
 ctt gga tta gcg gcg ggc ata cca ttg ctg gtg gcc aca gcc ctg ctg 266
 Leu Gly Leu Ala Ala Gly Ile Pro Leu Leu Val Ala Thr Ala Leu Leu
 30 35 40 45
 gtg gct tta cta ttt act ttg att cac cga aga aga agc agc att gag 314
 Val Ala Leu Leu Phe Thr Leu Ile His Arg Arg Arg Ser Ser Ile Glu
 50 55 60
 gcc atg gag gaa agt gac aga cca tgt gaa att tca gaa att gat gac 362
 Ala Met Glu Glu Ser Asp Arg Pro Cys Glu Ile Ser Glu Ile Asp Asp
 65 70 75
 aat ccc aag ata tct gag aat cct agg aga tca ccc aca cat gag aag 410
 Asn Pro Lys Ile Ser Glu Asn Pro Arg Arg Ser Pro Thr His Glu Lys
 80 85 90
 aat acg atg gga gca caa gag gcc cac ata tat gtg aag act gta gca 458
 Asn Thr Met Gly Ala Gln Glu Ala His Ile Tyr Val Lys Thr Val Ala
 95 100 105
 gga agc gag gaa cct gtg cat gac cgt tac cgt cct act ata gaa atg 506
 Gly Ser Glu Glu Pro Val His Asp Arg Tyr Arg Pro Thr Ile Glu Met

| 110 | 115 | 120 | 125 | |
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| gaa aga agg agg gga ttg tgg tgg ctt gtg ccc aga ctg agc ctg gaa | | | | 554 |
| Glu Arg Arg Arg Gly Leu Trp Trp Leu Val Pro Arg Leu Ser Leu Glu | | | | |
| | 130 | 135 | 140 | |
| tgatgcagct cagtcaagga gcagcagacc tggcactgga acaggggtga aaacccaggg | | | | 614 |
| ttttgtactt ggagaggaaa gatgccaaagc tgcttcttaa tcaatccaaa tttcatttac | | | | 674 |
| agctctggaa cactttgggg ctgatttgct tctttagggg acatccccaa catggttaat | | | | 734 |
| tccaactctc agatcttggtg ctttagttag tacatgtgac tcaccagatg gggtccttag | | | | 794 |
| atcctattcc tgctcccagt gggaatttgc ttttctttgt cattttggga aaggggcttg | | | | 854 |
| gtttctgagt gtcttgccct ctcattcttt ttttccatat cctttttctc aaaaaagcca | | | | 914 |
| tcagatctga ctttcatgga agtggtgctg aggtcagcct ggtgcaagtt gggatacaaa | | | | 974 |
| tgaaacttat gcaggatgtg tgagaggaag cagttaattg tttctgaata tctcagggtg | | | | 1034 |
| ggaaccatgt ggagccacac attccctgac cacaggggaag cacctggctc aatcatgtca | | | | 1094 |
| cacagcagtg gaaagaatac ggactcttaa gtcacaccta ccactgagca gctgtacgac | | | | 1154 |
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| tatttgccctc atgtcataat tgaaaagatt aaataagaaa taaagggaag tgtctgctac | | | | 1274 |
| ttagttgcca gtcaaaatgt tagttctctc tctctaccac cttcttcta cctcttccca | | | | 1334 |
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| cacaaggga catttaggac aaactttctc catggcctat gatccaaatt gttatctaaa | | | | 1454 |
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| acgcatagca ttgccgcttc agcttgctga ggactgtctc caaggaggcc aaatggaaaa | | | | 1874 |
| ggagaggcta cttcaagtgg tgttggccca ttgagcctat tgggcaaact ataaccaggt | | | | 1934 |
| tgccattatt tgggtggatt actccaggag aggccaccct ccagctttct cttatcccag | | | | 1994 |
| taactcctct tcccattttc caatccatcc ccagccattt tttttttct tctgtactct | | | | 2054 |
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ggggctctgc cactttgcca ccctggcact gatcctgctg gtgctgctgg aggctctggc      240
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ctccatctgg ctcccttctgg cgcctacacc ccctctcagc cactgtcttc agtctccaca      360
gaaacagcat caagtgtgcg gagacaggcg gctgaaagcc ggcacacga actgcccgtc      420
agagaagtgc acagcctggg ccagatactc ccacagg atg gac tca ctg cag aag      475
                               Met Asp Ser Leu Gln Lys
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cag gac ctc cgg agg ccc aag atc cat ggg gca gtc cag gca tct ccc      523
Gln Asp Leu Arg Arg Pro Lys Ile His Gly Ala Val Gln Ala Ser Pro
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tac cag ccg ccc aca ttg gct tcg ctg cag cgc ttg ctg tgg gtc cgt      571
Tyr Gln Pro Pro Thr Leu Ala Ser Leu Gln Arg Leu Leu Trp Val Arg
                               25                               30                               35

cag gct gcc aca ctg aac cat atc gat gag gtc tgg ccc agc ctc ttc      619
Gln Ala Ala Thr Leu Asn His Ile Asp Glu Val Trp Pro Ser Leu Phe
                               40                               45                               50

ctg gga gat gcg tac gca gcc cgg gac aag agc aag ctg atc cag ctg      667
Leu Gly Asp Ala Tyr Ala Ala Arg Asp Lys Ser Lys Leu Ile Gln Leu
                               55                               60                               65                               70

gga atc acc cac gtt gtg aat gcc gct gca ggc cgc gtg ctg gta cac      715
Gly Ile Thr His Val Val Asn Ala Ala Ala Gly Arg Val Leu Val His
                               75                               80                               85

tgt gcc atg ggg gta agc cgc tct gcc aca ctt gtc ctg gcc ttc ctc      763
Cys Ala Met Gly Val Ser Arg Ser Ala Thr Leu Val Leu Ala Phe Leu
                               90                               95                               100

atg atc tat gag aac atg acg ctg gta gag gcc atc cag acg gtg cag      811
Met Ile Tyr Glu Asn Met Thr Leu Val Glu Ala Ile Gln Thr Val Gln
                               105                               110                               115

gcc cac cgc aat atc tgc cct aac tca ggc ttc ctc cgg cag ctc cag      859
Ala His Arg Asn Ile Cys Pro Asn Ser Gly Phe Leu Arg Gln Leu Gln
                               120                               125                               130

gtt ctg gac aac cga ctg ggg cgg gag acg ggg cgg ttc tga tctggca      908
Val Leu Asp Asn Arg Leu Gly Arg Glu Thr Gly Arg Phe *
                               135                               140                               145

ggcagccagg atccctgacc cttggcccaa ccccaccag cctggccctg ggaacagcag      968
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 <221> CDS
 <222> (105)..(518)

<400> 738

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taggtgaccc tcggctgctg cagggatctg cagcgactgc agcc atg ggg gcg cac      116
                               Met Gly Ala His
                               1

ctg gtc cgg cgc tac ctg ggc gat gcc tcg gtg gag ccc gac ccc ctg      164
Leu Val Arg Arg Tyr Leu Gly Asp Ala Ser Val Glu Pro Asp Pro Leu
   5                10                15                20

cag atg cca acc ttc ccg cca gac tac ggc ttc ccc gaa cgc aag gag      212
Gln Met Pro Thr Phe Pro Pro Asp Tyr Gly Phe Pro Glu Arg Lys Glu
                25                30                35

cgc gag atg gtg gcc aca cag cag gag atg atg gac gcg cag ctg agg      260
Arg Glu Met Val Ala Thr Gln Gln Glu Met Met Asp Ala Gln Leu Arg
                40                45                50

ctc cag ctg cgg gac tac tgc gcc cac cac ctc atc cgg ctg ctc aag      308
Leu Gln Leu Arg Asp Tyr Cys Ala His His Leu Ile Arg Leu Leu Lys
                55                60                65

tgc aag cgt gac agc ttc ccc aac ttc ctg gcc tgc aag cag gag cgg      356
Cys Lys Arg Asp Ser Phe Pro Asn Phe Leu Ala Cys Lys Gln Glu Arg
                70                75                80

cac gac tgg gac tac tgc gag cac cgc gac tat gtg atg cgc atg aag      404
His Asp Trp Asp Tyr Cys Glu His Arg Asp Tyr Val Met Arg Met Lys
                85                90                95                100

gag ttt gag cgg gag cgg agg ctg ctc cag cgg aag aag cgg cgg gag      452
Glu Phe Glu Arg Glu Arg Arg Leu Leu Gln Arg Lys Lys Arg Arg Glu
                105                110                115

aag aag gcg gca gag ttg gcc aaa ggc cag gga ccc ggg gaa gtg gac      500
Lys Lys Ala Ala Glu Leu Ala Lys Gly Gln Gly Pro Gly Glu Val Asp
                120                125                130

ccc aag gtg gcc ctg tag ggggtg cccccccac cctatggacc agtcaaataa      554
Pro Lys Val Ala Leu *
                135

aagccttcag gccctcaaa aaaaaaaaaa      583

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<210> 739
 <211> 535
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (105)..(470)

<400> 739

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taggtgaccc tcggctgctg cagggatctg cagcgactgc agcc atg ggg gcg cac      116
                               Met Gly Ala His
                               1

ctg gtc cgg cgc tac ctg ggc gat gcc tcg gtg gag ccc gac ccc ctg      164
Leu Val Arg Arg Tyr Leu Gly Asp Ala Ser Val Glu Pro Asp Pro Leu
   5                10                15                20

cag atg cca acc ttc ccg cca gac tac ggc ttc ccc gaa cgc aag gag      212
Gln Met Pro Thr Phe Pro Pro Asp Tyr Gly Phe Pro Glu Arg Lys Glu
                25                30                35

cgc gag atg gtg gcc aca cag cag gag atg atg gac gcg ctg ctc aag      260
Arg Glu Met Val Ala Thr Gln Gln Glu Met Met Asp Ala Leu Leu Lys
                40                45                50

tgc aag cgt gac agc ttc ccc aac ttc ctg gcc tgc aag cag gag cgg      308
Cys Lys Arg Asp Ser Phe Pro Asn Phe Leu Ala Cys Lys Gln Glu Arg
                55                60                65

cac gac tgg gac tac tgc gag cac cgc gac tat gtg atg cgc atg aag      356
His Asp Trp Asp Tyr Cys Glu His Arg Asp Tyr Val Met Arg Met Lys
                70                75                80

gag ttt gag cgg gag cgg agg ctg ctc cag cgg aag aag cgg cgg gag      404
Glu Phe Glu Arg Glu Arg Arg Leu Leu Gln Arg Lys Lys Arg Arg Glu
   85                90                95                100

aag aag gcg gca gag ttg gcc aaa ggc cag gga ccc ggg gaa gtg gac      452
Lys Lys Ala Ala Glu Leu Ala Lys Gly Gln Gly Pro Gly Glu Val Asp
                105                110                115

ccc aag gtg gcc ctg tag ggggtg cccccccac cctatggacc agtcaaataa      506
Pro Lys Val Ala Leu *
                120

aagccttcag gccctcaaa aaaaaaaaaa      535

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<210> 740

<211> 3897

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (75)..(3800)

<400> 740

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taagggaagc cgtg atg agg gcc gtg ttg acg tgg aga gat aaa gcc gag      110
Met Arg Ala Val Leu Thr Trp Arg Asp Lys Ala Glu

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| | 1 | 5 | 10 | |
|---|-----|-----|-----|-----|
| cac tgt ata aat gac atc gca ttt aag cct gat gga act caa ctg att | | | | 158 |
| His Cys Ile Asn Asp Ile Ala Phe Lys Pro Asp Gly Thr Gln Leu Ile | | | | |
| | 15 | 20 | 25 | |
| ttg gct gcc gga agc aga tta ctg gtt tat gac acc tct gat ggc acc | | | | 206 |
| Leu Ala Ala Gly Ser Arg Leu Leu Val Tyr Asp Thr Ser Asp Gly Thr | | | | |
| | 30 | 35 | 40 | |
| tta ctt cag ccc ctc aag gga cac aaa gac act gtg tac tgt gtg gca | | | | 254 |
| Leu Leu Gln Pro Leu Lys Gly His Lys Asp Thr Val Tyr Cys Val Ala | | | | |
| | 45 | 50 | 55 | 60 |
| tat gcg aag gat ggc aag cgc ttt gct tct gga tca gct gac aaa agc | | | | 302 |
| Tyr Ala Lys Asp Gly Lys Arg Phe Ala Ser Gly Ser Ala Asp Lys Ser | | | | |
| | 65 | 70 | 75 | |
| gtt att atc tgg aca tca aaa ctg gaa ggc att ctg aag tac acg cac | | | | 350 |
| Val Ile Ile Trp Thr Ser Lys Leu Glu Gly Ile Leu Lys Tyr Thr His | | | | |
| | 80 | 85 | 90 | |
| aat gat gct ata caa tgt gtc tcc tac aat cct att act cat caa ctg | | | | 398 |
| Asn Asp Ala Ile Gln Cys Val Ser Tyr Asn Pro Ile Thr His Gln Leu | | | | |
| | 95 | 100 | 105 | |
| gca tct tgt tcc tcc agt gac ttt ggg ttg tgg tct cct gaa cag aag | | | | 446 |
| Ala Ser Cys Ser Ser Ser Asp Phe Gly Leu Trp Ser Pro Glu Gln Lys | | | | |
| | 110 | 115 | 120 | |
| tct gtc tcc aaa cac aaa tca agc agc aag atc atc tgc tgc agc tgg | | | | 494 |
| Ser Val Ser Lys His Lys Ser Ser Ser Lys Ile Ile Cys Cys Ser Trp | | | | |
| | 125 | 130 | 135 | 140 |
| aca aat gat ggt cag tac ctg gcg ctg ggg atg ttc aat ggg atc atc | | | | 542 |
| Thr Asn Asp Gly Gln Tyr Leu Ala Leu Gly Met Phe Asn Gly Ile Ile | | | | |
| | 145 | 150 | 155 | |
| agc ata cgg aac aaa aat ggc gag gag aaa gta aag atc gag cgg ccg | | | | 590 |
| Ser Ile Arg Asn Lys Asn Gly Glu Glu Lys Val Lys Ile Glu Arg Pro | | | | |
| | 160 | 165 | 170 | |
| ggg ggc tcc ctc tcg cca ata tgg tcc atc tgc tgg aac cct tca agc | | | | 638 |
| Gly Gly Ser Leu Ser Pro Ile Trp Ser Ile Cys Trp Asn Pro Ser Ser | | | | |
| | 175 | 180 | 185 | |
| cga tgg gag agt ttc tgg atg aac aga gag aat gag gat gcc gag gat | | | | 686 |
| Arg Trp Glu Ser Phe Trp Met Asn Arg Glu Asn Glu Asp Ala Glu Asp | | | | |
| | 190 | 195 | 200 | |
| gtc att gtc aac aga tat att cag gaa atc cct tcc act ctg aag tca | | | | 734 |
| Val Ile Val Asn Arg Tyr Ile Gln Glu Ile Pro Ser Thr Leu Lys Ser | | | | |
| | 205 | 210 | 215 | 220 |
| gca gtg tac agt agt cag ggt agt gag gca gag gag gaa gaa cca gag | | | | 782 |
| Ala Val Tyr Ser Ser Gln Gly Ser Glu Ala Glu Glu Glu Glu Pro Glu | | | | |
| | 225 | 230 | 235 | |
| gaa gag gac gac agt ccc agg gac gac aac tta gag gaa cgt aat gac | | | | 830 |
| Glu Glu Asp Asp Ser Pro Arg Asp Asp Asn Leu Glu Glu Arg Asn Asp | | | | |
| | 240 | 245 | 250 | |
| atc ctg gct gtg gct gac tgg gga cag aaa gtt tcc ttc tac cag ctg | | | | 878 |
| Ile Leu Ala Val Ala Asp Trp Gly Gln Lys Val Ser Phe Tyr Gln Leu | | | | |

| 255 | 260 | 265 | |
|---|-----|-----|------|
| agt gga aaa cag att gga aag gat cgg gca ctg aac ttt gac ccc tgc Ser Gly Lys Gln Ile Gly Lys Asp Arg Ala Leu Asn Phe Asp Pro Cys 270 275 280 | | | 926 |
| tgc atc agc tac ttt act aaa ggc gag tac att ttg ctg ggg ggt tca Cys Ile Ser Tyr Phe Thr Lys Gly Glu Tyr Ile Leu Leu Gly Gly Ser 285 290 295 300 | | | 974 |
| gac aag caa gta tct ctt ttc acc aag gat gga gtg cgg ctt ggg act Asp Lys Gln Val Ser Leu Phe Thr Lys Asp Gly Val Arg Leu Gly Thr 305 310 315 | | | 1022 |
| gtt ggg gag cag aac tcc tgg gtg tgg acg tgt caa gcg aaa ccg gat Val Gly Glu Gln Asn Ser Trp Val Trp Thr Cys Gln Ala Lys Pro Asp 320 325 330 | | | 1070 |
| tcc aac tat gtg gtg gtc ggc tgc cag gac ggc acc att tcc ttc tac Ser Asn Tyr Val Val Val Gly Cys Gln Asp Gly Thr Ile Ser Phe Tyr 335 340 345 | | | 1118 |
| cag ctt att ttc agc aca gtc cat ggg ctt tac aag gac cgc tat gcc Gln Leu Ile Phe Ser Thr Val His Gly Leu Tyr Lys Asp Arg Tyr Ala 350 355 360 | | | 1166 |
| tac agg gat agc atg act gac gtc att gtg cag cac ctg atc act gag Tyr Arg Asp Ser Met Thr Asp Val Ile Val Gln His Leu Ile Thr Glu 365 370 375 380 | | | 1214 |
| cag aaa gtt cgg att aaa tgc aaa gag ctt gtc aag aag att gcc atc Gln Lys Val Arg Ile Lys Cys Lys Glu Leu Val Lys Lys Ile Ala Ile 385 390 395 | | | 1262 |
| tac aga aat cga ttg gct atc caa ctg cca gag aaa atc ctc atc tat Tyr Arg Asn Arg Leu Ala Ile Gln Leu Pro Glu Lys Ile Leu Ile Tyr 400 405 410 | | | 1310 |
| gag ttg tat tca gag gac tta tca gac atg cat tac cgg gta aag gag Glu Leu Tyr Ser Glu Asp Leu Ser Asp Met His Tyr Arg Val Lys Glu 415 420 425 | | | 1358 |
| aag att atc aag aag ttt gag tgc aac ctc ctg gtg gtg tgt gcc aat Lys Ile Ile Lys Lys Phe Glu Cys Asn Leu Leu Val Val Cys Ala Asn 430 435 440 | | | 1406 |
| cac atc atc ctg tgc cag gag aaa cgg ctg cag tgc ctg tcc ttc agc His Ile Ile Leu Cys Gln Glu Lys Arg Leu Gln Cys Leu Ser Phe Ser 445 450 455 460 | | | 1454 |
| gga gtg aag gag cgg gag tgg cag atg gag tct ctc att cgt tac atc Gly Val Lys Glu Arg Glu Trp Gln Met Glu Ser Leu Ile Arg Tyr Ile 465 470 475 | | | 1502 |
| aag gtg atc ggt ggc cct cct gga aga gaa ggc ctc tta gtg ggg ctg Lys Val Ile Gly Gly Pro Pro Gly Arg Glu Gly Leu Leu Val Gly Leu 480 485 490 | | | 1550 |
| aag aat gga cag atc ctg aag atc ttc gtg gac aat ctc ttt gct atc Lys Asn Gly Gln Ile Leu Lys Ile Phe Val Asp Asn Leu Phe Ala Ile 495 500 505 | | | 1598 |
| gtc ctg ctg aag cag gcc aca gct gtg cgc tgc ttg gac atg agt gcc Val Leu Leu Lys Gln Ala Thr Ala Val Arg Cys Leu Asp Met Ser Ala 510 515 520 | | | 1646 |

| 510 | 515 | 520 | |
|---|-----|-----|------|
| tcc cgt aag aag ctg gcc gtg gta gat gaa aat gac act tgc ctg gtg Ser Arg Lys Lys Leu Ala Val Val Asp Glu Asn Asp Thr Cys Leu Val 525 530 535 540 | | | 1694 |
| tat gac atc gac acc aag gag ctg ctt ttt cag gaa cca aac gcc aac Tyr Asp Ile Asp Thr Lys Glu Leu Leu Phe Gln Glu Pro Asn Ala Asn 545 550 555 | | | 1742 |
| agt gta gct tgg aac acc cag tgt gag gac atg ctc tgc ttc tcg gga Ser Val Ala Trp Asn Thr Gln Cys Glu Asp Met Leu Cys Phe Ser Gly 560 565 570 | | | 1790 |
| gga ggc tac ctc aac atc aaa gcc agc acc ttc cct gtg cac cgg cag Gly Gly Tyr Leu Asn Ile Lys Ala Ser Thr Phe Pro Val His Arg Gln 575 580 585 | | | 1838 |
| aag ctg cag ggc ttt gtg gtc ggc tac aat ggc tcc aag atc ttc tgc Lys Leu Gln Gly Phe Val Val Gly Tyr Asn Gly Ser Lys Ile Phe Cys 590 595 600 | | | 1886 |
| ctc cat gtc ttc tcc att tct gcc gtg gag gtg ccg cag tcc gct ccc Leu His Val Phe Ser Ile Ser Ala Val Glu Val Pro Gln Ser Ala Pro 605 610 615 620 | | | 1934 |
| atg tac cag tac ctg gat agg aaa ctg ttc aag gaa gcc tac cag att Met Tyr Gln Tyr Leu Asp Arg Lys Leu Phe Lys Glu Ala Tyr Gln Ile 625 630 635 | | | 1982 |
| gct tgc ttg ggt gtc aca gac act gat tgg cgt gaa ctg gcc atg gaa Ala Cys Leu Gly Val Thr Asp Thr Asp Trp Arg Glu Leu Ala Met Glu 640 645 650 | | | 2030 |
| gcg cta gaa ggt tta gat ttt gaa aca gca aag aag gcc ttc atc aga Ala Leu Glu Gly Leu Asp Phe Glu Thr Ala Lys Lys Ala Phe Ile Arg 655 660 665 | | | 2078 |
| gta caa gac ctc cga tat tta gag ctc atc agc agc att gag gag agg Val Gln Asp Leu Arg Tyr Leu Glu Leu Ile Ser Ser Ile Glu Glu Arg 670 675 680 | | | 2126 |
| aag aag cgg gga gag acc aac aat gac ctg ttt ctg gca gat gtg ttt Lys Lys Arg Gly Glu Thr Asn Asn Asp Leu Phe Leu Ala Asp Val Phe 685 690 695 700 | | | 2174 |
| tcc tac cag ggg aag ttc cat gag gcc gcc aaa ctg tac aag agg agt Ser Tyr Gln Gly Lys Phe His Glu Ala Ala Lys Leu Tyr Lys Arg Ser 705 710 715 | | | 2222 |
| ggg cac gag aac ctc gcg ctt gaa atg tac acc gac ctc tgc atg ttt Gly His Glu Asn Leu Ala Leu Glu Met Tyr Thr Asp Leu Cys Met Phe 720 725 730 | | | 2270 |
| gag tat gcc aag gat ttc ctt gga tct gga gac ccc aaa gaa aca aag Glu Tyr Ala Lys Asp Phe Leu Gly Ser Gly Asp Pro Lys Glu Thr Lys 735 740 745 | | | 2318 |
| atg cta atc acc aaa cag gct gac tgg gcc aga aat atc aag gag ccc Met Leu Ile Thr Lys Gln Ala Asp Trp Ala Arg Asn Ile Lys Glu Pro 750 755 760 | | | 2366 |
| aaa gcc gcc gtg gag atg tac atc tca gca gga gag cac gtc aag gcc Lys Ala Ala Val Glu Met Tyr Ile Ser Ala Gly Glu His Val Lys Ala 765 770 775 780 | | | 2414 |

| 765 | 770 | 775 | 780 | |
|--|------|------|------|------|
| atc gag atc tgt ggt gac cat ggc tgg gtt gac atg ttg atc gac atc Ile Glu Ile Cys Gly Asp His Gly Trp Val Asp Met Leu Ile Asp Ile | 785 | 790 | 795 | 2462 |
| gcc cgc aaa ctg gac aag gct gag cgc gag ccc ctg ctg ctg tgc gct Ala Arg Lys Leu Asp Lys Ala Glu Arg Glu Pro Leu Leu Leu Cys Ala | 800 | 805 | 810 | 2510 |
| acc tac ctc aag aag ctg gac agc cct ggc tat gct gct gag acc tac Thr Tyr Leu Lys Lys Leu Asp Ser Pro Gly Tyr Ala Ala Glu Thr Tyr | 815 | 820 | 825 | 2558 |
| ctg aag atg ggt gac ctc aag tcc ctg gtg cag ctg cac gtg gag acc Leu Lys Met Gly Asp Leu Lys Ser Leu Val Gln Leu His Val Glu Thr | 830 | 835 | 840 | 2606 |
| cag cgc tgg gat gag gcc ttt gct ttg ggt gag aag cat cct gag ttt Gln Arg Trp Asp Glu Ala Phe Ala Leu Gly Glu Lys His Pro Glu Phe | 845 | 850 | 855 | 2654 |
| aag gat gac atc tac atg ccg tat gct cag tgg cta gca gag aac gat Lys Asp Asp Ile Tyr Met Pro Tyr Ala Gln Trp Leu Ala Glu Asn Asp | 865 | 870 | 875 | 2702 |
| cgc ttt gag gaa gcc cag aaa gcg ttc cac aag gct ggg cga cag aga Arg Phe Glu Glu Ala Gln Lys Ala Phe His Lys Ala Gly Arg Gln Arg | 880 | 885 | 890 | 2750 |
| gaa gcg gtc cag gtg ctg gag cag ctc aca aac aat gcc gtg gcg gag Glu Ala Val Gln Val Leu Glu Gln Leu Thr Asn Asn Ala Val Ala Glu | 895 | 900 | 905 | 2798 |
| agc agg ttt aat gat gct gcc tat tat tac tgg atg ctg tcc atg cag Ser Arg Phe Asn Asp Ala Ala Tyr Tyr Tyr Trp Met Leu Ser Met Gln | 910 | 915 | 920 | 2846 |
| tgc ctc gat ata gct caa gat cct gcc cag aag gac aca atg ctt ggc Cys Leu Asp Ile Ala Gln Asp Pro Ala Gln Lys Asp Thr Met Leu Gly | 925 | 930 | 935 | 2894 |
| aag ttc tac cac ttc cag cgt ttg gca gag ctg tac cat ggt tac cat Lys Phe Tyr His Phe Gln Arg Leu Ala Glu Leu Tyr His Gly Tyr His | 945 | 950 | 955 | 2942 |
| gcc atc cat cgc cac acg gaa gat ccg ttc agt gtc cat cgt cct gaa Ala Ile His Arg His Thr Glu Asp Pro Phe Ser Val His Arg Pro Glu | 960 | 965 | 970 | 2990 |
| act ctt ttc aac atc tcc agg ttc ctg ctg cac agc ctg ccc aag gac Thr Leu Phe Asn Ile Ser Arg Phe Leu Leu His Ser Leu Pro Lys Asp | 975 | 980 | 985 | 3038 |
| acc ccc tcg ggc atc tct aaa gtg aaa ata ctc ttc acc ttg gcc aag Thr Pro Ser Gly Ile Ser Lys Val Lys Ile Leu Phe Thr Leu Ala Lys | 990 | 995 | 1000 | 3086 |
| cag agc aag gcc ctc ggt gcc tac agg ctg gcc cgg cac gcc tat gac Gln Ser Lys Ala Leu Gly Ala Tyr Arg Leu Ala Arg His Ala Tyr Asp | 1005 | 1010 | 1015 | 3134 |
| aag ctg cgt ggc ctg tac atc cct gcc aga ttc caa aag tcc att gag Lys Leu Arg Gly Leu Tyr Ile Pro Ala Arg Phe Gln Lys Ser Ile Glu | | | | 3182 |

| | 1025 | 1030 | 1035 | |
|--|------|------|------|------|
| ctg ggt acc ctg acc atc cgc gcc aag ccc ttc cac gac agt gag gag | | | | 3230 |
| Leu Gly Thr Leu Thr Ile Arg Ala Lys Pro Phe His Asp Ser Glu Glu | | | | |
| | 1040 | 1045 | 1050 | |
| ttg gtg ccc ttg tgc tac cgc tgc tcc acc aac aac ccg ctg ctc aac | | | | 3278 |
| Leu Val Pro Leu Cys Tyr Arg Cys Ser Thr Asn Asn Pro Leu Leu Asn | | | | |
| | 1055 | 1060 | 1065 | |
| aac ctg ggc aac gtc tgc atc aac tgc cgc cag ccc ttc atc ttc tcc | | | | 3326 |
| Asn Leu Gly Asn Val Cys Ile Asn Cys Arg Gln Pro Phe Ile Phe Ser | | | | |
| | 1070 | 1075 | 1080 | |
| gcc tct tcc tac gac gtg cta cac ctg gtt gag ttc tac ctg gag gaa | | | | 3374 |
| Ala Ser Ser Tyr Asp Val Leu His Leu Val Glu Phe Tyr Leu Glu Glu | | | | |
| 1085 | 1090 | 1095 | 1100 | |
| ggg atc act gat gaa gaa gcc atc tcc ctc atc gac ctg gag gtg ctg | | | | 3422 |
| Gly Ile Thr Asp Glu Glu Ala Ile Ser Leu Ile Asp Leu Glu Val Leu | | | | |
| | 1105 | 1110 | 1115 | |
| aga ccc aag cgg gat gac aga cag cta gag att gca aac aac agc tcc | | | | 3470 |
| Arg Pro Lys Arg Asp Asp Arg Gln Leu Glu Ile Ala Asn Asn Ser Ser | | | | |
| | 1120 | 1125 | 1130 | |
| cag att ctg cgg cta gtg gag acc aag gac tcc atc gga gat gag gac | | | | 3518 |
| Gln Ile Leu Arg Leu Val Glu Thr Lys Asp Ser Ile Gly Asp Glu Asp | | | | |
| | 1135 | 1140 | 1145 | |
| ccg ttc aca gct aag ctg agc ttt gag caa ggt ggc tca gag ttc gtg | | | | 3566 |
| Pro Phe Thr Ala Lys Leu Ser Phe Glu Gln Gly Gly Ser Glu Phe Val | | | | |
| | 1150 | 1155 | 1160 | |
| cca gtg gtg gtg agc cgg ctg gtg ctg cgc tcc atg agc cgc cgg gat | | | | 3614 |
| Pro Val Val Val Ser Arg Leu Val Leu Arg Ser Met Ser Arg Arg Asp | | | | |
| 1165 | 1170 | 1175 | 1180 | |
| gtc ctc atc aag cga tgg ccc cca ccc ctg agg tgg caa tac ttc cgc | | | | 3662 |
| Val Leu Ile Lys Arg Trp Pro Pro Pro Leu Arg Trp Gln Tyr Phe Arg | | | | |
| | 1185 | 1190 | 1195 | |
| tca ctg ctg cct gac gcc tcc att acc atg tgc ccc tcc tgc ttc cag | | | | 3710 |
| Ser Leu Leu Pro Asp Ala Ser Ile Thr Met Cys Pro Ser Cys Phe Gln | | | | |
| | 1200 | 1205 | 1210 | |
| atg ttc cat tct gag gac tat gag ttg ctg gtg ctt cag cat ggc tgc | | | | 3758 |
| Met Phe His Ser Glu Asp Tyr Glu Leu Leu Val Leu Gln His Gly Cys | | | | |
| | 1215 | 1220 | 1225 | |
| tgc ccc tac tgc cgc agg tgc aag gat gac cct ggc cca tga ccagcat | | | | 3807 |
| Cys Pro Tyr Cys Arg Arg Cys Lys Asp Asp Pro Gly Pro * | | | | |
| | 1230 | 1235 | 1240 | |
| cctggggacg gcctgcaccc tctgcccgcc ttgggggtctg ctgggctgtg aaggagaata | | | | 3867 |
| aagagttaaa ctgtcaaaaa aaaaaaaaaa | | | | 3897 |

<210> 741

<211> 1802

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (87)..(1139)

<400> 741

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ccggcaggca agcgtttgcc tccgcc atg aac ccc agg ggc ctg ttc cag gac      113
                               Met Asn Pro Arg Gly Leu Phe Gln Asp
                               1                               5

ttc aac ccc agt aag gtt ctc atc tac acc tgc ctg ctg ctc ttc tcg      161
Phe Asn Pro Ser Lys Val Leu Ile Tyr Thr Cys Leu Leu Leu Phe Ser
 10                               15                               20                               25

ggg ctg ctg ccc ctc cgc ctg gac ggc atc atc caa tgg agc tac tgg      209
Gly Leu Leu Pro Leu Arg Leu Asp Gly Ile Ile Gln Trp Ser Tyr Trp
                               30                               35                               40

gcc gtc ttt gcc ccc ata tgg ctg agg aag ctt cta gtc gtc gca ggc      257
Ala Val Phe Ala Pro Ile Trp Leu Arg Lys Leu Leu Val Val Ala Gly
                               45                               50                               55

gcc tcc gtg ggc gcg ggc gtt tgg gcc cgc aac cct cgc tac cgc acc      305
Ala Ser Val Gly Ala Gly Val Trp Ala Arg Asn Pro Arg Tyr Arg Thr
                               60                               65                               70

gag gga gag gcc tgt gtg gag atc aaa gcc atg ctg atc gct gtg ggc      353
Glu Gly Glu Ala Cys Val Glu Ile Lys Ala Met Leu Ile Ala Val Gly
                               75                               80                               85

atc cac ctg ctg ctg ctc atg ttc gaa gtc ctg gtc tgc gac agg gtg      401
Ile His Leu Leu Leu Leu Met Phe Glu Val Leu Val Cys Asp Arg Val
 90                               95                               100                               105

gag agg ggc acc cac ttc tgg ctg ctg gtc ttc atg cct ctc ttc ttc      449
Glu Arg Gly Thr His Phe Trp Leu Leu Val Phe Met Pro Leu Phe Phe
                               110                               115                               120

gtg tcc ccc gtg tcc gtg gct gcc tgc gtc tgg ggc ttt cga cac gat      497
Val Ser Pro Val Ser Val Ala Ala Cys Val Trp Gly Phe Arg His Asp
                               125                               130                               135

agg tcg ctg gag ctg gag atc ctg tgc tcg gtc aac atc ctg cag ttc      545
Arg Ser Leu Glu Leu Glu Ile Leu Cys Ser Val Asn Ile Leu Gln Phe
                               140                               145                               150

atc ttc atc gcc cta aag ctg gac agg att att cac tgg ccg tgg ctg      593
Ile Phe Ile Ala Leu Lys Leu Asp Arg Ile Ile His Trp Pro Trp Leu
                               155                               160                               165

gtg gtg ttt gtg ccc ctg tgg atc ctc atg tcg ttc ctt tgc ctg gtc      641
Val Val Phe Val Pro Leu Trp Ile Leu Met Ser Phe Leu Cys Leu Val
170                               175                               180                               185

gtc ctc tat tac atc gtc tgg tcc ctc ctg ttc ctg cgg tcc ctg gat      689
Val Leu Tyr Tyr Ile Val Trp Ser Leu Leu Phe Leu Arg Ser Leu Asp
                               190                               195                               200

gtg gtt gcc gag cag cgg aga aca cac gtg acc atg gct atc agt tgg      737
Val Val Ala Glu Gln Arg Arg Thr His Val Thr Met Ala Ile Ser Trp
                               205                               210                               215

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| | |
|---|------|
| ata acg att gtc gtg cct ctg ctc act ttt gag gtc ctg ctg gtt cac Ile Thr Ile Val Val Pro Leu Leu Thr Phe Glu Val Leu Leu Val His 220 225 230 | 785 |
| aga ttg gat ggc cac aat aca ttc tcc tac gtc tcc ata ttt gtc ccc Arg Leu Asp Gly His Asn Thr Phe Ser Tyr Val Ser Ile Phe Val Pro 235 240 245 | 833 |
| ctt tgg ctt tcc tta cta act tta atg gcc aca aca ttt agg cga aag Leu Trp Leu Ser Leu Leu Thr Leu Met Ala Thr Thr Phe Arg Arg Lys 250 255 260 265 | 881 |
| ggg ggc aat cat tgg tgg ttt ggc att cgc aga gac ttc tgt cag ttt Gly Gly Asn His Trp Trp Phe Gly Ile Arg Arg Asp Phe Cys Gln Phe 270 275 280 | 929 |
| ctg ctt gaa att ttc cca ttt tta aga gaa tat ggg aac att tca tat Leu Leu Glu Ile Phe Pro Phe Leu Arg Glu Tyr Gly Asn Ile Ser Tyr 285 290 295 | 977 |
| gat ctc cat cac gaa gat agt gaa gat gct gaa gaa aca tca gtt cca Asp Leu His His Glu Asp Ser Glu Asp Ala Glu Glu Thr Ser Val Pro 300 305 310 | 1025 |
| gaa gct ccg aaa att gct cca ata ttt gga aag aag gcc aga gta gtt Glu Ala Pro Lys Ile Ala Pro Ile Phe Gly Lys Lys Ala Arg Val Val 315 320 325 | 1073 |
| ata acc cag agc cct ggg aaa tac gtt ccc ccc cct ccc aag tta aat Ile Thr Gln Ser Pro Gly Lys Tyr Val Pro Pro Pro Pro Lys Leu Asn 330 335 340 345 | 1121 |
| att gat atg cca gat taa actcct agagaggacc caggcacaca cagactccac Ile Asp Met Pro Asp * 350 | 1175 |
| ttggccttcg cctcttgttc attcatccca aacctggaaa tggaaacagg cttcaaacac | 1235 |
| tcgtctcacg ccgtgtttga gatcaccgcc tcatcagtat gcatcataga tggaggtggt | 1295 |
| ttcagtatgt ggggtgtgtgt ggtgtgtacc tgggtaagag acttgctttc caggttcgca | 1355 |
| ctttcaggtg tagctggggg cagtaagtcg aattgtttta gtaggtcctc aaaaggaata | 1415 |
| accacacagc tgtttgttta aatgctactg tacctatcaa aactattggt taaaaagtat | 1475 |
| ttttatacac tgctaatacta aaattgtatt tcagattgtg cctgtcataa caatagcaaa | 1535 |
| tgtaaaaagt tctctttccc accacttggt tataaacctc atagttgata tttttagtgt | 1595 |
| tcctactggt aaaatactct ctccttgggc tttgctgata ctggtcttta atattctgat | 1655 |
| aggtgaatth ttctaattga atgaacccat gcatatatag tatttatatg aatatttttag | 1715 |
| cagtgtataa tgttgaattc tagttctctg cattaccatt attacgttaa agtatttttt | 1775 |
| aaagcttagg tgtgaaaaaa aaaaaaa | 1802 |

<210> 742

<211> 1413

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (21) .. (740)

<400> 742

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                               Met Thr Cys Phe Gly Pro Tyr Pro Ile Gly
                               1           5           10

act gga ctt cag gga ata acc ttg tgt tat agt tgt ttt ccc tcc ttc      98
Thr Gly Leu Gln Gly Ile Thr Leu Cys Tyr Ser Cys Phe Pro Ser Phe
                               15           20           25

tgc aag atg aaa agc agg atg tgc atg gct atc agc att tgt cag acg      146
Cys Lys Met Lys Ser Arg Met Cys Met Ala Ile Ser Ile Cys Gln Thr
                               30           35           40

ctt tcc atg ttg agt ttt gtg gtc tgt gct ttc agg tac agg cat atg      194
Leu Ser Met Leu Ser Phe Val Val Cys Ala Phe Arg Tyr Arg His Met
                               45           50           55

ttc aaa agg ggt tgg cca atg ggt aca tgt tgt ttg ttt ctg ccc aca      242
Phe Lys Arg Gly Trp Pro Met Gly Thr Cys Cys Leu Phe Leu Pro Thr
                               60           65           70

gct gcc cca gtg ctc agc tgt gaa gct gca aca cag act gaa agg aga      290
Ala Ala Pro Val Leu Ser Cys Glu Ala Ala Thr Gln Thr Glu Arg Arg
                               75           80           85           90

ctg gat ctg gct gca gtg act ctg agg aga ggc ttg aga tct aga gct      338
Leu Asp Leu Ala Ala Val Thr Leu Arg Arg Gly Leu Arg Ser Arg Ala
                               95           100          105

tcg cga tgc aga ccg cgg tct ttg ata gat tac aaa tcc tac atg gac      386
Ser Arg Cys Arg Pro Arg Ser Leu Ile Asp Tyr Lys Ser Tyr Met Asp
                               110          115          120

acc aag ctg ctg gtg gcg agg ttc ctg gag cag tcc tct tgt acc atg      434
Thr Lys Leu Leu Val Ala Arg Phe Leu Glu Gln Ser Ser Cys Thr Met
                               125          130          135

acc cca gac atc cat gaa ctt gta gaa aac att aaa tct gtt ttg aaa      482
Thr Pro Asp Ile His Glu Leu Val Glu Asn Ile Lys Ser Val Leu Lys
                               140          145          150

tct gat gag gag cac atg gag gaa gcc atc aca agt gcc agt ttt cta      530
Ser Asp Glu Glu His Met Glu Glu Ala Ile Thr Ser Ala Ser Phe Leu
                               155          160          165          170

gaa cag ata atg gcc cca ttg cag ccc agc aca tcc agg gcc cac aag      578
Glu Gln Ile Met Ala Pro Leu Gln Pro Ser Thr Ser Arg Ala His Lys
                               175          180          185

ctg ccc ttg cgg aga cag cct ggc ctg ctg cac ctc cag agc tgc ggc      626
Leu Pro Leu Arg Arg Gln Pro Gly Leu Leu His Leu Gln Ser Cys Gly
                               190          195          200

gac ctt cac acc atc aca cca gcg ggg agg ccc cga gcc gag agg agg      674
Asp Leu His Thr Ile Thr Pro Ala Gly Arg Pro Arg Ala Glu Arg Arg
                               205          210          215

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ccc cgg cga gtg gag gct gag cgg tca cac agc ctc att ggg gtc atc      722
Pro Arg Arg Val Glu Ala Glu Arg Ser His Ser Leu Ile Gly Val Ile
      220                      225                      230

cga gag act gtc ctg tga accctg gaagacagaa ggtcactcca aggggaagga      776
Arg Glu Thr Val Leu *
235                      240

tccctctcct ctctgtcatg tcttgatgg gagctgtggc ccacctcaaa aaaaaaggag      836

cactctggac acgtgttccc acctgttggg tcccggtgtct gctgactgag ggcattcagg      896

agtaaagcga caggtcggtc caggcccgtc tgggtttggg atgcactgag ttggagggtta      956

tgaaagcttt gatcctcttc ttcctctgct gggcctcgca gcattcccaa gggtcacatg    1016

ccctggcatg ggcagaaact gggctaata ttttttgccc acttcacccc tcgtgtctct      1076

ctttgttgct aagttctttc cctcttgga ggacagatct gccgggctgc tatttatagt      1136

tgcccttggc ctttcaactgc tctgcgattt ggcaggaaat aaggcgatta accctatgtg    1196

tccacaagcc tcaagccttg tttcaggtca ccctcaaata acactctctt taggcaaaac      1256

aggaaacttc ttaagtgaca aattttaatg ccagacattt aaggagagga ttattgttga      1316

ttccatttac tcatgcttgc aaaactagag acccctaagg cagaactgag aataaacatg      1376

tttactttgg gccactgggc ttgatgtgta aaaaaaa                                1413

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<210> 743
 <211> 1711
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (338)..(1051)

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<400> 743
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tgaggacggt tgggacaaag gtatagtcaa agtgatcaga gcattacatt catctgacaa      120

gtcttgtctc ttttcagccc cttectctct taattgacta cttcatcctc gtccttgga      180

acatcctttc attggtcagc cacatctttc ctgcttggcc catccatccc catctatttg      240

tcatacccca tgaaacttaa cctcattatg gtttgcattc tggattctcc tctccaccat      300

ctggcctttac cttgggggtg gtgtcgtaca tgacaca atg acg tgt ttc ggg cca      355
                        Met Thr Cys Phe Gly Pro
                        1                      5

tat cct att gga act gga ctt cag gga ata acc ttg tgt tgt ttt ccc      403
Tyr Pro Ile Gly Thr Gly Leu Gln Gly Ile Thr Leu Cys Cys Phe Pro
      10                      15                      20

tcc ttc tgc aag atg aaa agc agg atg tgc atg gct atc agc att tgt      451
Ser Phe Cys Lys Met Lys Ser Arg Met Cys Met Ala Ile Ser Ile Cys
      25                      30                      35

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cag atg ctt tcc atg ttg agt ttt gtg gtc tgt gct ttc agg tac agg 499
 Gln Met Leu Ser Met Leu Ser Phe Val Val Cys Ala Phe Arg Tyr Arg
 40 45 50

cat atg ttc aaa agg ggc tgg cca atg ggt aca tgt tgt ttg ttt ctg 547
 His Met Phe Lys Arg Gly Trp Pro Met Gly Thr Cys Cys Leu Phe Leu
 55 60 65 70

ccc aca gct gcc cca gtg ctc agc tgt gaa gct gca aca cag act gaa 595
 Pro Thr Ala Ala Pro Val Leu Ser Cys Glu Ala Ala Thr Gln Thr Glu
 75 80 85

agg aga ctg gat ctg gct gca gtg act ctg agg aga ggc ttg aga tct 643
 Arg Arg Leu Asp Leu Ala Ala Val Thr Leu Arg Arg Gly Leu Arg Ser
 90 95 100

aga gct tcg cga tgc aga ccg cgg tct ttg ata gat tac aaa tcc tac 691
 Arg Ala Ser Arg Cys Arg Pro Arg Ser Leu Ile Asp Tyr Lys Ser Tyr
 105 110 115

atg gac acc aag ctg ctg gtg gcg agg ttc ctg gag cag tcc tct tgt 739
 Met Asp Thr Lys Leu Leu Val Ala Arg Phe Leu Glu Gln Ser Ser Cys
 120 125 130

acc atg acc cca gac atc cat gaa ctt gta gaa aac att aaa tct gtt 787
 Thr Met Thr Pro Asp Ile His Glu Leu Val Glu Asn Ile Lys Ser Val
 135 140 145 150

ttg aaa tct gat gag gag cac atg gag gaa gcc atc aca agt gcc agt 835
 Leu Lys Ser Asp Glu Glu His Met Glu Glu Ala Ile Thr Ser Ala Ser
 155 160 165

ttt cta gaa cag ata atg gcc cca ttg cag ccc agc aca tcc agg gcc 883
 Phe Leu Glu Gln Ile Met Ala Pro Leu Gln Pro Ser Thr Ser Arg Ala
 170 175 180

cac aag ctg ccc tcg cgg aga cag cct ggc ctg ctg cac ctc cag agc 931
 His Lys Leu Pro Ser Arg Arg Gln Pro Gly Leu Leu His Leu Gln Ser
 185 190 195

tgc ggc gac ctt cac acc ttc aca cca gcg ggg agg ccc cga gcc gag 979
 Cys Gly Asp Leu His Thr Phe Thr Pro Ala Gly Arg Pro Arg Ala Glu
 200 205 210

agg agg ccc cgg cga gtg gag gct gag cgg cca cac agc ctc att ggg 1027
 Arg Arg Pro Arg Arg Val Glu Ala Glu Arg Pro His Ser Leu Ile Gly
 215 220 225 230

gtc atc cga gag act gtc ctg tga accctggaag acagaaggcc actccaaggg 1081
 Val Ile Arg Glu Thr Val Leu *
 235

gaaggatccc tctcctctct gccatttctt ggctgggagc tgtgggtccac ctcaaaaaaa 1141

aggagcactc tggaggacac gttttccac ctgttggtc cctgtgtctgc tgactgaggg 1201

cattcaggag taaatgcaca ggtcgggtcca ggcccgctctg ggtttgaggat gcaactgagtt 1261

ggaggttatg aaagctttga tctcttctt cctctgctgg gctcgcagc attccaagg 1321

gtcacatgcc ctggcatggg cagaaactgg gctaattgatt ctttgccac ttcacccctc 1381

gtgtctctct ttgttgctaa gttctttccc tcttggaagg acagatctgc cgggctgcta 1441

tttatagttg cctttggcct ttcactgctc tgcgatttgg caggaaataa ggcgattaac 1501
 cctatgtgtc cacaagcctc aagccttggt tcaggtcacc ctcaaatac actctcttta 1561
 ggcaaaacag gaaacttctt aagtgacaaa ttttaatgcc agacatttaa ggagaggatt 1621
 attgttgatt ccatttactc atgcttgcaa aactagagac ccctaaggca gaactgagaa 1681
 taaacatggt tactttgggc caaaaaaaaaa 1711

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 <211> 453
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (90)..(407)

<400> 744
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 gcagtgtttt gccttcaccc caagtgacc atg aga ggt gcc acg cga gtc tca 113
 Met Arg Gly Ala Thr Arg Val Ser
 1 5
 atc atg ctc ctc cta gta act gtg tct gac tgt gct gtg atc aca ggg 161
 Ile Met Leu Leu Leu Val Thr Val Ser Asp Cys Ala Val Ile Thr Gly
 10 15 20
 gcc tgt gag cgg gat gtc cag tgt ggg gca ggc acc tgc tgt gcc atc 209
 Ala Cys Glu Arg Asp Val Gln Cys Gly Ala Gly Thr Cys Cys Ala Ile
 25 30 35 40
 agc ctg tgg ctt cga ggg ctg cgg atg tgc acc ccg ctg ggg cgg gaa 257
 Ser Leu Trp Leu Arg Gly Leu Arg Met Cys Thr Pro Leu Gly Arg Glu
 45 50 55
 ggc gag gag tgc cac ccc ggc agc cac aag atc ccc ttc ttc agg aaa 305
 Gly Glu Glu Cys His Pro Gly Ser His Lys Ile Pro Phe Phe Arg Lys
 60 65 70
 cgc aag cac cac acc tgt cct tgc ttg ccc aac ctg ctg tgc tcc agg 353
 Arg Lys His His Thr Cys Pro Cys Leu Pro Asn Leu Leu Cys Ser Arg
 75 80 85
 ttc ccg gac ggc agg tac cgc tgc tcc atg gac ttg aag aac atc aat 401
 Phe Pro Asp Gly Arg Tyr Arg Cys Ser Met Asp Leu Lys Asn Ile Asn
 90 95 100
 ttt tag gcgcttgctt ggtctcagga taccacccat tcttttctg agcaca 453
 Phe *
 105

<210> 745
 <211> 1735

<212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (473) .. (1201)

<400> 745

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cccgggtcga cccacgcgtc cggcggcgct cggctcggct cgggcatttc cgcctctttg      60
ttttaaaactc cggacgggct tttttctcct cctcttgggg gggacccaga gggagcggcg      120
ccccctcccc cctccggcgc ggaccccgcg tgcgccttgc tcgcccgcag ccccgagacc      180
gcaggcgtca caatgtagca gggaccccag gcgtcgtgct cagaaaatgg aaaaagagcc      240
agggccggaa ggaggggtgca gaagcgagtc cgcgtgcgga gccaggaggc agcgtcgcgt      300
gggagtgctg gcctgaagcc tccatgcccc ggcagaggga cggacacgcg gacgtctagc      360
ggaggctccc gtgtcctcag tatgcatcag gtctcccgaa cctcacagcc ccgcagggag      420
gaggagaagg ggaggatttg actttggaag tctctgtgac cagaagccaa ag    atg      475
                                   Met
                                   1

ttg acc agg aag atc aag ctg tgg gac atc aac gcc cac atc acc tgc      523
Leu Thr Arg Lys Ile Lys Leu Trp Asp Ile Asn Ala His Ile Thr Cys
                    5                      10                      15

cgc ctg tgc agc ggg tac ctc atc gac gcc acc acg gtg acc gag tgt      571
Arg Leu Cys Ser Gly Tyr Leu Ile Asp Ala Thr Thr Val Thr Glu Cys
                    20                      25                      30

ctg cac acc ttc tgc agg agc tgc ctg gtg aag tac ctg gag gag aac      619
Leu His Thr Phe Cys Arg Ser Cys Leu Val Lys Tyr Leu Glu Glu Asn
                    35                      40                      45

atc acc tgc ccc acc tgc agg att gtg atc cac cag agc cac ccc ctg      667
Ile Thr Cys Pro Thr Cys Arg Ile Val Ile His Gln Ser His Pro Leu
                    50                      55                      60                      65

cag tac atc ggt cat gac aga acc atg caa gat att gtt tac aaa ttg      715
Gln Tyr Ile Gly His Asp Arg Thr Met Gln Asp Ile Val Tyr Lys Leu
                    70                      75                      80

gta cca ggc ctc caa gaa gcg gaa atg aga aag cag agg gag ttc tat      763
Val Pro Gly Leu Gln Glu Ala Glu Met Arg Lys Gln Arg Glu Phe Tyr
                    85                      90                      95

cac aaa ttg ggc atg gag gtg ccg gga gac atc aag ggg gag acc tgc      811
His Lys Leu Gly Met Glu Val Pro Gly Asp Ile Lys Gly Glu Thr Cys
                    100                     105                     110

tct gca aaa cag cac tta gat tcc cat cgg aat ggt gaa acc aaa gca      859
Ser Ala Lys Gln His Leu Asp Ser His Arg Asn Gly Glu Thr Lys Ala
                    115                     120                     125

gac gac agt tca aac aaa gag gcc gcg gag gag aag ccg gag gag gac      907
Asp Asp Ser Ser Asn Lys Glu Ala Ala Glu Glu Lys Pro Glu Glu Asp
                    130                     135                     140                     145

aac gac tac cac cgc agc gac gag cag gtg agc atc tgc ctg gag tgt      955
Asn Asp Tyr His Arg Ser Asp Glu Gln Val Ser Ile Cys Leu Glu Cys

```

| | 150 | 155 | 160 | |
|--|-----|-----|-----|------|
| aac agc agc aaa ctg cgc ggg ctg aag cgg aag tgg atc cgc tgc tca | | | | 1003 |
| Asn Ser Ser Lys Leu Arg Gly Leu Lys Arg Lys Trp Ile Arg Cys Ser | | | | |
| | 165 | 170 | 175 | |
| gcc cag gcg acc gtc ttg cat ctg aag aag ttc atc gcc aaa aaa ctc | | | | 1051 |
| Ala Gln Ala Thr Val Leu His Leu Lys Lys Phe Ile Ala Lys Lys Leu | | | | |
| | 180 | 185 | 190 | |
| aac ctt tca tcc ttt aac gag ctg gac att tta tgc aac gag gag atc | | | | 1099 |
| Asn Leu Ser Ser Phe Asn Glu Leu Asp Ile Leu Cys Asn Glu Glu Ile | | | | |
| | 195 | 200 | 205 | |
| ctg ggc aag gac cac aca ctc aag ttc gtg gtt gtc act agg tgg aga | | | | 1147 |
| Leu Gly Lys Asp His Thr Leu Lys Phe Val Val Val Thr Arg Trp Arg | | | | |
| | 210 | 215 | 220 | 225 |
| ttc aag aag gcg ccg ctc ctg ctg cac tac aga ccc aag atg gac ttg | | | | 1195 |
| Phe Lys Lys Ala Pro Leu Leu Leu His Tyr Arg Pro Lys Met Asp Leu | | | | |
| | 230 | 235 | 240 | |
| ctg tga atggtgccac acagcgccca cagactgggc cctcgcaccc ttgggtgctc | | | | 1251 |
| Leu * | | | | |
| ccggccgccc cgcttaagaa cattgcctct ggggtgtcatg tggaccagac ttctgaatag | | | | 1311 |
| agaatattta taacttttgt atgagagaga attcacactc aacaagacac taccagcacc | | | | 1371 |
| acgtttacag aggatgaaaa cacttcacag tctcccagag ccgatcgtcc tctccccgc | | | | 1431 |
| cccaccccggt gcttcagcct tgcagggaga gtgatgctcc aggcaacacg gttctgagtc | | | | 1491 |
| accttctgac acgagctccc tctgcttgct ttccaggtct tgaaaatctg aattcacttc | | | | 1551 |
| agtttagttt atgaatttta ggtttcatga taagcctcaa ttgtagttgg acttttattg | | | | 1611 |
| aatccttcct aagttattga aaaaatgtct tttcatgggtg aatgacaata tttatgttgc | | | | 1671 |
| ctttagcttc ttgaagattt agaagttata taaaaaatta atttaaaagc aaaaaaaaaa | | | | 1731 |
| aaaa | | | | 1735 |

<210> 746
 <211> 1185
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (6) .. (1139)

| | | |
|---|---|----|
| gcggt | atg ccg cac gag gtg gta cgc gat gag aac agc agc gtc tac | 47 |
| | Met Pro His Glu Val Val Arg Asp Glu Asn Ser Ser Val Tyr | |
| | 1 5 10 | |
| gcc gag gtc tcc cgg ctg ctc ctc gcc acc ggc cac tgg aag agg ctg | | 95 |
| Ala Glu Val Ser Arg Leu Leu Leu Ala Thr Gly His Trp Lys Arg Leu | | |
| | 15 20 25 30 | |

| | |
|---|-----|
| cgg cga gac aac ccc aga ttc aac ctg atg ctg gga gag agg aat cgg | 143 |
| Arg Arg Asp Asn Pro Arg Phe Asn Leu Met Leu Gly Glu Arg Asn Arg | |
| 35 40 45 | |
| ctg ccc ttc ggg aga ctg ggt cac gag ccc ggg ctg gta cag ttg gtg | 191 |
| Leu Pro Phe Gly Arg Leu Gly His Glu Pro Gly Leu Val Gln Leu Val | |
| 50 55 60 | |
| aat tac tac agg ggt gct gac aaa ctg tgt cgc aaa gct tct tta gtg | 239 |
| Asn Tyr Tyr Arg Gly Ala Asp Lys Leu Cys Arg Lys Ala Ser Leu Val | |
| 65 70 75 | |
| aag cta atc aag aca agc cct gaa ctg gct gag tcc tgc aca tgg ttc | 287 |
| Lys Leu Ile Lys Thr Ser Pro Glu Leu Ala Glu Ser Cys Thr Trp Phe | |
| 80 85 90 | |
| cct gaa tct tat gtg att tat cca acc aat ctc aag act cca gtt gct | 335 |
| Pro Glu Ser Tyr Val Ile Tyr Pro Thr Asn Leu Lys Thr Pro Val Ala | |
| 95 100 105 110 | |
| cca gca cag aat gga att cag cca cca atc agt aac tca agg aca gat | 383 |
| Pro Ala Gln Asn Gly Ile Gln Pro Pro Ile Ser Asn Ser Arg Thr Asp | |
| 115 120 125 | |
| gaa aga gaa ttc ttt ctc gcc tct tat aac aga aag aaa gag gat gga | 431 |
| Glu Arg Glu Phe Phe Leu Ala Ser Tyr Asn Arg Lys Lys Glu Asp Gly | |
| 130 135 140 | |
| gag ggc aac gtt tgg att gca aag tca tca gcc ggt gcc aaa ggt gaa | 479 |
| Glu Gly Asn Val Trp Ile Ala Lys Ser Ser Ala Gly Ala Lys Gly Glu | |
| 145 150 155 | |
| ggc att ctc atc tcc tca gag gct tca gag ctt ctc gat ttc ata gac | 527 |
| Gly Ile Leu Ile Ser Ser Glu Ala Ser Glu Leu Leu Asp Phe Ile Asp | |
| 160 165 170 | |
| aac cag ggc caa gtg cac gtg atc cag aaa tat ctt gag cac cct ctg | 575 |
| Asn Gln Gly Gln Val His Val Ile Gln Lys Tyr Leu Glu His Pro Leu | |
| 175 180 185 190 | |
| ctg ctt gag cca ggt cat cgc aag ttt gac atc cga agc tgg gtc ttg | 623 |
| Leu Leu Glu Pro Gly His Arg Lys Phe Asp Ile Arg Ser Trp Val Leu | |
| 195 200 205 | |
| gtg gat cat cag tat aat atc tac ctc tat aga gag ggt gtg ctt cgg | 671 |
| Val Asp His Gln Tyr Asn Ile Tyr Leu Tyr Arg Glu Gly Val Leu Arg | |
| 210 215 220 | |
| act gct tca gaa cca tat cat gtt gat aat ttc caa gac aaa acc tgc | 719 |
| Thr Ala Ser Glu Pro Tyr His Val Asp Asn Phe Gln Asp Lys Thr Cys | |
| 225 230 235 | |
| cat ttg acc aat cac tgc att caa aaa gag tat tca aag aac tac ggg | 767 |
| His Leu Thr Asn His Cys Ile Gln Lys Glu Tyr Ser Lys Asn Tyr Gly | |
| 240 245 250 | |
| aag tat gaa gaa gga aat gaa atg ttc ttc aag gag ttc aat cag tac | 815 |
| Lys Tyr Glu Glu Gly Asn Glu Met Phe Phe Lys Glu Phe Asn Gln Tyr | |
| 255 260 265 270 | |
| cta aca agt gct ttg aac att acc cta gaa agt agt atc tta cta caa | 863 |
| Leu Thr Ser Ala Leu Asn Ile Thr Leu Glu Ser Ser Ile Leu Leu Gln | |
| 275 280 285 | |

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atc aaa cat ata ata agg aac tgc ctc ctg agc gtg gag cct gcc att      911
Ile Lys His Ile Ile Arg Asn Cys Leu Leu Ser Val Glu Pro Ala Ile
                290                295                300

agc acc aag cac ctc cct tac cag agc ttc cag ctc ttc ggc ttt gac      959
Ser Thr Lys His Leu Pro Tyr Gln Ser Phe Gln Leu Phe Gly Phe Asp
                305                310                315

ttc atg gtc gac gag gag ctg aag gtg tgg ctc att gag gtc aac ggt      1007
Phe Met Val Asp Glu Glu Leu Lys Val Trp Leu Ile Glu Val Asn Gly
                320                325                330

gcc cct gca tgt gct cag aag ctc tat gca gaa ctg tgc caa ggc atc      1055
Ala Pro Ala Cys Ala Gln Lys Leu Tyr Ala Glu Leu Cys Gln Gly Ile
                335                340                345                350

gtg gac ata gcc att tcc agt gtc ttc cca ccc cca gat gtg gag caa      1103
Val Asp Ile Ala Ile Ser Ser Val Phe Pro Pro Pro Asp Val Glu Gln
                355                360                365

cct cag acc cag cca gct gcc ttc atc aag ctg tga caga gggcactccc      1153
Pro Gln Thr Gln Pro Ala Ala Phe Ile Lys Leu *
                370                375

tgctgccttg gaaaaagcac ggtgtactgc tc      1185

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<210> 747
 <211> 1986
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (251)..(913)

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<400> 747
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gagcggcggc ggccatcgag acccacccaa ggcgcgtccc cctcggcctc ccagcgctcc      180
caagccgtag cggcgcgcgc ccttcagcta gctcgtctgc tcgctctgct tccctgctgc      240
cggctgcgcc   atg gcg ttg gcg ttg gcg gcg ctg gcg gcg gtc gag ccg      289
               Met Ala Leu Ala Leu Ala Ala Leu Ala Ala Val Glu Pro
                1                5                10

gcc tgc ggc agc cgg tac cag cag ttg cag aat gaa gaa gag tct gga      337
Ala Cys Gly Ser Arg Tyr Gln Gln Leu Gln Asn Glu Glu Glu Ser Gly
                15                20                25

gaa cct gaa cag gct gca ggt gat gct cct cca cct tac agc agc att      385
Glu Pro Glu Gln Ala Ala Gly Asp Ala Pro Pro Pro Tyr Ser Ser Ile
                30                35                40                45

tct gca gag agc gca gca tat ttt gac tac aag gat gag tct ggg ttt      433
Ser Ala Glu Ser Ala Ala Tyr Phe Asp Tyr Lys Asp Glu Ser Gly Phe
                50                55                60

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| | |
|--|------|
| cca aag ccc cca tct tac aat gta gct aca aca ctg ccc agt tat gat | 481 |
| Pro Lys Pro Pro Ser Tyr Asn Val Ala Thr Thr Leu Pro Ser Tyr Asp | |
| 65 70 75 | |
| gaa gcg gag agg acc aag gct gaa gct act atc cct ttg gtt cct ggg | 529 |
| Glu Ala Glu Arg Thr Lys Ala Glu Ala Thr Ile Pro Leu Val Pro Gly | |
| 80 85 90 | |
| aga gat gag gat ttt gtg ggt cgg gat gat ttt gat gat gct gac cag | 577 |
| Arg Asp Glu Asp Phe Val Gly Arg Asp Asp Phe Asp Asp Ala Asp Gln | |
| 95 100 105 | |
| ctg agg ata gga aat gat ggg att ttc atg tta act ttt ttc atg gca | 625 |
| Leu Arg Ile Gly Asn Asp Gly Ile Phe Met Leu Thr Phe Phe Met Ala | |
| 110 115 120 125 | |
| ttc ctc ttt aac tgg att ggg ttt ttc ctg tct ttt tgc ctg acc act | 673 |
| Phe Leu Phe Asn Trp Ile Gly Phe Phe Leu Ser Phe Cys Leu Thr Thr | |
| 130 135 140 | |
| tca gct gca gga agg tat ggg gcc att tca gga ttt ggt ctc tct cta | 721 |
| Ser Ala Ala Gly Arg Tyr Gly Ala Ile Ser Gly Phe Gly Leu Ser Leu | |
| 145 150 155 | |
| att aaa tgg atc ctg att gtc agg ttt tcc acc tat ttc cct gga tat | 769 |
| Ile Lys Trp Ile Leu Ile Val Arg Phe Ser Thr Tyr Phe Pro Gly Tyr | |
| 160 165 170 | |
| ttt gat ggt cag tac tgg ctc tgg tgg gtg ttc ctt gtt tta ggc ttt | 817 |
| Phe Asp Gly Gln Tyr Trp Leu Trp Trp Val Phe Leu Val Leu Gly Phe | |
| 175 180 185 | |
| ctc ctg ttt ctc aga gga ttt atc aat tat gca aaa gtt cgg aag atg | 865 |
| Leu Leu Phe Leu Arg Gly Phe Ile Asn Tyr Ala Lys Val Arg Lys Met | |
| 190 195 200 205 | |
| cca gaa act ttc tca aat ctc ccc agg acc aga gtt ctc ttt att tat | 913 |
| Pro Glu Thr Phe Ser Asn Leu Pro Arg Thr Arg Val Leu Phe Ile Tyr | |
| 210 215 220 | |
| taaagatggt ttctggcaaa ggccttcctg catttatgaa ttctctctca agaagcaaga | 973 |
| gaacacctgc aggaagtgaa tcaagatgca gaacacagag gaataatcac ctgctttaa | 1033 |
| aaaataaagt actgttgaaa agatcatttc tctctatttg ttcttaggtg taaaatttta | 1093 |
| atagttaatg cagaattctg taatcattga atcattagtg gttaatgttt gaaaaagctc | 1153 |
| ttgcaatcaa gtctgtgatg tattaataat gccttatata ttgtttgtag tcattttaag | 1213 |
| tagcatgagc catgtccctg tagtcggtag ggggcagtct tgctttattc atcctccatc | 1273 |
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| gttttctcaa aagttaaact tttgttatga ctgtgttttt gcacataatc catatttgct | 1393 |
| gttcaagtta atctagaaat ttattcaatt ctgtatgaac acctggaagc aaaatcatag | 1453 |
| tgcaaaaata catttaagggt gtggtcaaaa ataagtcttt aattggtaaa taataagcat | 1513 |
| taatttttta tagcctgtat tcacaattct gcggtacctt attgtacctt agggattcta | 1573 |
| aagggtgtgt cactgtataa aacagaaagc actaggatac aaatgaagct taattactaa | 1633 |

aatgtaattc ttgacactct ttctataatt agcggttctc acccccaccc ccacccccac 1693
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 ctgtactact tgctttttaca atgtgttagc agaaaccagt gggttataat gtagaatgat 1873
 gtgctttctg cccaagtggg aattcatctt ggtttgctat gttaaaactg taaataacaac 1933
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 Met Ala Leu Ala
 1
 tcc ggg ccc gca agg cgg gcg cta gct ggc tcc ggg cag ctc ggc ctt 162
 Ser Gly Pro Ala Arg Arg Ala Leu Ala Gly Ser Gly Gln Leu Gly Leu
 5 10 15 20
 ggg ggc ttc ggg gcc ccg aga cgc ggg gcg tat gag tgg ggc gtg cgc 210
 Gly Gly Phe Gly Ala Pro Arg Arg Gly Ala Tyr Glu Trp Gly Val Arg
 25 30 35
 tcc acg cgg aag tcg gag cct cct ccc ctg gat agg gtg tac gag atc 258
 Ser Thr Arg Lys Ser Glu Pro Pro Pro Leu Asp Arg Val Tyr Glu Ile
 40 45 50
 cct gga ctg gag ccc atc acc ttt gcg ggg aag atg cac ttc gtg ccc 306
 Pro Gly Leu Glu Pro Ile Thr Phe Ala Gly Lys Met His Phe Val Pro
 55 60 65
 tgg ctg gcg cgg ccg atc ttt ccg ccc tgg gac cgc ggc tac aag gac 354
 Trp Leu Ala Arg Pro Ile Phe Pro Pro Trp Asp Arg Gly Tyr Lys Asp
 70 75 80
 cca agg ttc tac cgc tcg ccc cct ctt cac gag cat ccg ctg tac aaa 402
 Pro Arg Phe Tyr Arg Ser Pro Pro Leu His Glu His Pro Leu Tyr Lys
 85 90 95 100
 gac cag gcc tgc tat atc ttt cac cac cgt tgc cgc ctt ctc gag ggt 450
 Asp Gln Ala Cys Tyr Ile Phe His His Arg Cys Arg Leu Leu Glu Gly
 105 110 115
 gta aag cag gcc ctc tgg ctc acc aag acc aag tta ata gaa ggc ctt 498
 Val Lys Gln Ala Leu Trp Leu Thr Lys Thr Lys Leu Ile Glu Gly Leu
 120 125 130
 ccc gag aaa gtg ctt agc ctt gtt gat gat cca agg aac cac ata gag 546

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Pro | Glu | Lys | Val | Leu | Ser | Leu | Val | Asp | Asp | Pro | Arg | Asn | His | Ile | Glu | | |
| | | 135 | | | | | 140 | | | | | 145 | | | | | |
| aac | caa | gac | gag | tgc | gtt | ctg | aat | gtg | atc | tct | cac | gcc | cgt | ctc | tgg | 594 | |
| Asn | Gln | Asp | Glu | Cys | Val | Leu | Asn | Val | Ile | Ser | His | Ala | Arg | Leu | Trp | | |
| | | 150 | | | | | 155 | | | | 160 | | | | | | |
| cag | acc | act | gag | gaa | atc | ccc | aag | aga | gag | acc | tac | tgc | ccg | gtc | atc | 642 | |
| Gln | Thr | Thr | Glu | Glu | Ile | Pro | Lys | Arg | Glu | Thr | Tyr | Cys | Pro | Val | Ile | | |
| | | 165 | | | | | 170 | | | | 175 | | | | 180 | | |
| gtg | gac | aac | cta | ata | cag | ctg | tgt | aaa | tct | cag | att | ctc | aag | cat | cct | 690 | |
| Val | Asp | Asn | Leu | Ile | Gln | Leu | Cys | Lys | Ser | Gln | Ile | Leu | Lys | His | Pro | | |
| | | | | 185 | | | | | 190 | | | | | 195 | | | |
| tct | ctg | gcc | agg | agg | atc | tgt | gtc | caa | aac | tcc | acg | ttt | tct | gct | acc | 738 | |
| Ser | Leu | Ala | Arg | Arg | Ile | Cys | Val | Gln | Asn | Ser | Thr | Phe | Ser | Ala | Thr | | |
| | | | 200 | | | | | 205 | | | | | 210 | | | | |
| tgg | aac | cga | gag | tct | ctt | ctc | ctt | caa | gtc | cgt | ggg | tct | ggg | gga | gcc | 786 | |
| Trp | Asn | Arg | Glu | Ser | Leu | Leu | Leu | Gln | Val | Arg | Gly | Ser | Gly | Gly | Ala | | |
| | | 215 | | | | | 220 | | | | | 225 | | | | | |
| cga | ctg | agc | act | aag | gat | cct | ctg | ccc | acc | atc | gcc | tcc | aga | gag | gag | 834 | |
| Arg | Leu | Ser | Thr | Lys | Asp | Pro | Leu | Pro | Thr | Ile | Ala | Ser | Arg | Glu | Glu | | |
| | | 230 | | | | 235 | | | | | 240 | | | | | | |
| att | gaa | gct | act | aag | aat | cat | gtt | cta | gag | acc | ttc | tac | ccc | ata | tca | 882 | |
| Ile | Glu | Ala | Thr | Lys | Asn | His | Val | Leu | Glu | Thr | Phe | Tyr | Pro | Ile | Ser | | |
| | | 245 | | | | 250 | | | | 255 | | | | | 260 | | |
| ccc | atc | atc | gat | ctt | cat | gaa | tgc | aat | att | tat | gat | gtg | aaa | aat | gac | 930 | |
| Pro | Ile | Ile | Asp | Leu | His | Glu | Cys | Asn | Ile | Tyr | Asp | Val | Lys | Asn | Asp | | |
| | | | | 265 | | | | 270 | | | | | 275 | | | | |
| aca | gga | ttc | cag | gaa | ggc | tat | cct | tac | ccc | tat | ccc | cat | acc | ctg | tac | 978 | |
| Thr | Gly | Phe | Gln | Glu | Gly | Tyr | Pro | Tyr | Pro | Tyr | Pro | His | Thr | Leu | Tyr | | |
| | | | 280 | | | | 285 | | | | | 290 | | | | | |
| tta | ctg | gac | aaa | gcc | aat | tta | cga | cca | cac | cgc | ctt | caa | cca | gat | cag | 1026 | |
| Leu | Leu | Asp | Lys | Ala | Asn | Leu | Arg | Pro | His | Arg | Leu | Gln | Pro | Asp | Gln | | |
| | | 295 | | | | 300 | | | | | | 305 | | | | | |
| ctg | cgg | gcc | aag | atg | atc | ctg | ttt | gct | ttt | ggc | agt | gcc | ctg | gct | cag | 1074 | |
| Leu | Arg | Ala | Lys | Met | Ile | Leu | Phe | Ala | Phe | Gly | Ser | Ala | Leu | Ala | Gln | | |
| | | 310 | | | | 315 | | | | 320 | | | | | | | |
| gcc | cgg | ctc | ctc | tat | ggg | aat | gat | gcc | aag | gtc | ttg | gag | cag | ccc | gtg | 1122 | |
| Ala | Arg | Leu | Leu | Tyr | Gly | Asn | Asp | Ala | Lys | Val | Leu | Glu | Gln | Pro | Val | | |
| | | 325 | | | 330 | | | | 335 | | | | | | 340 | | |
| gtg | gtg | cag | agc | gtg | ggc | acg | gat | gga | cgt | gtc | ttc | cat | ttc | cta | gtg | 1170 | |
| Val | Val | Gln | Ser | Val | Gly | Thr | Asp | Gly | Arg | Val | Phe | His | Phe | Leu | Val | | |
| | | | | 345 | | | | 350 | | | | | | 355 | | | |
| ttt | caa | ctg | aat | acc | aca | gac | ctg | gac | tgt | aac | gag | ggg | gtc | aag | aat | 1218 | |
| Phe | Gln | Leu | Asn | Thr | Thr | Asp | Leu | Asp | Cys | Asn | Glu | Gly | Val | Lys | Asn | | |
| | | | 360 | | | | 365 | | | | | 370 | | | | | |
| ttg | gcc | tgg | gtg | gac | tca | gac | cag | ctc | ctc | tat | cag | cat | ttt | tgg | tgt | 1266 | |
| Leu | Ala | Trp | Val | Asp | Ser | Asp | Gln | Leu | Leu | Tyr | Gln | His | Phe | Trp | Cys | | |
| | | 375 | | | | | 380 | | | | 385 | | | | | | |
| ctc | cca | gtg | atc | aaa | aag | aga | gtg | gtt | gtg | gaa | cct | gtt | ggg | cca | gtt | 1314 | |

Leu Pro Val Ile Lys Lys Arg Val Val Val Glu Pro Val Gly Pro Val
 390 395 400

ggt ttc aag cca gag aca ttc aga aag ttt tta gct cta tat ttg cat 1362
 Gly Phe Lys Pro Glu Thr Phe Arg Lys Phe Leu Ala Leu Tyr Leu His
 405 410 415 420

ggt gct gcg tga gca gaggaccct ctgaatcctg aaaccctct tgcctctctt 1417
 Gly Ala Ala *

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 ggacattgtg tgggccagag gcaggg atg gtt ggc tat gac ccc aaa cca gat 173
 Met Val Gly Tyr Asp Pro Lys Pro Asp
 1 5

ggc agg aat aac acc aag ttc cag gtg gca gtg gct ggg tct gtg tct 221
 Gly Arg Asn Asn Thr Lys Phe Gln Val Ala Val Ala Gly Ser Val Ser
 10 15 20 25

gga ctt gtt act cgg gcg ctg atc agt ccc ttc gac gtc atc aag atc 269
 Gly Leu Val Thr Arg Ala Leu Ile Ser Pro Phe Asp Val Ile Lys Ile
 30 35 40

cgt ttc cag ctt cag cat gag cgc ctg tct cgc agt gac ccc agc gca 317
 Arg Phe Gln Leu Gln His Glu Arg Leu Ser Arg Ser Asp Pro Ser Ala
 45 50 55

aag tac cat ggc atc ctc cag gcc tct agg cag att ctg cag gag gag 365
 Lys Tyr His Gly Ile Leu Gln Ala Ser Arg Gln Ile Leu Gln Glu Glu
 60 65 70

ggt ccg aca gct ttc tgg aaa gga cac gtc cca gct cag att ctc tcc 413
 Gly Pro Thr Ala Phe Trp Lys Gly His Val Pro Ala Gln Ile Leu Ser
 75 80 85

ata ggc tat gga gct gtc caa ttc ttg tca ttt gaa atg ctg acg gag 461
 Ile Gly Tyr Gly Ala Val Gln Phe Leu Ser Phe Glu Met Leu Thr Glu
 90 95 100 105

ctg gtc cac aga ggc agc gtg tac gac gcc cgg gaa ttc tca gtg cac 509
 Leu Val His Arg Gly Ser Val Tyr Asp Ala Arg Glu Phe Ser Val His
 110 115 120

| | |
|---|------|
| ttt gta tgt ggt ggc ctg gct gcc tgt atg gcc acc ctc act gtg cac Phe Val Cys Gly Gly Leu Ala Ala Cys Met Ala Thr Leu Thr Val His 125 130 135 | 557 |
| ccc gtg gat gtt ctg cgc acc cgc ttt gca gct cag ggt gag ccc aag Pro Val Asp Val Leu Arg Thr Arg Phe Ala Ala Gln Gly Glu Pro Lys 140 145 150 | 605 |
| gtc tat aat acg ctg cgc cac gcc gtg ggg acc atg tat agg agc gaa Val Tyr Asn Thr Leu Arg His Ala Val Gly Thr Met Tyr Arg Ser Glu 155 160 165 | 653 |
| ggc ccc cag gtt ttc tac aaa ggc ttg gct ccc acc ttg atc gcc atc Gly Pro Gln Val Phe Tyr Lys Gly Leu Ala Pro Thr Leu Ile Ala Ile 170 175 180 185 | 701 |
| ttc ccc tac gcc ggg ctg cag ttc tct tgc tac agc tcc ttg aag cac Phe Pro Tyr Ala Gly Leu Gln Phe Ser Cys Tyr Ser Ser Leu Lys His 190 195 200 | 749 |
| ctg tac aag tgg gcc ata cca gcc gaa gga aag aaa aat gag aac ctc Leu Tyr Lys Trp Ala Ile Pro Ala Glu Gly Lys Lys Asn Glu Asn Leu 205 210 215 | 797 |
| caa aac ctg ctt tgt ggc agt gga gct ggt gtc atc agc aag acc ctg Gln Asn Leu Leu Cys Gly Ser Gly Ala Gly Val Ile Ser Lys Thr Leu 220 225 230 | 845 |
| aca tat ccg ctg gac ctc ttc aag aag cgg cta cag gtt gga ggg ttt Thr Tyr Pro Leu Asp Leu Phe Lys Lys Arg Leu Gln Val Gly Gly Phe 235 240 245 | 893 |
| gag cat gcc aga gct gcc ttt ggc cag gta cgg aga tac aag ggc ctc Glu His Ala Arg Ala Ala Phe Gly Gln Val Arg Arg Tyr Lys Gly Leu 250 255 260 265 | 941 |
| atg gac tgt gcc aag cag gtg cta caa aag gaa ggc gcc ctg ggc ttc Met Asp Cys Ala Lys Gln Val Leu Gln Lys Glu Gly Ala Leu Gly Phe 270 275 280 | 989 |
| ttc aag ggc ctg tcc ccc agc ttg ctg aag gct gcc ctc tcc aca ggc Phe Lys Gly Leu Ser Pro Ser Leu Leu Lys Ala Ala Leu Ser Thr Gly 285 290 295 | 1037 |
| ttc atg ttc ttc tcg tat gaa ttc ttc tgt aat gtc ttc cac tgc atg Phe Met Phe Phe Ser Tyr Glu Phe Phe Cys Asn Val Phe His Cys Met 300 305 310 | 1085 |
| aac agg aca gcc agc cag cgc tga gcgcaggaag gacccaggt cttccctgga Asn Arg Thr Ala Ser Gln Arg * 315 320 | 1139 |
| ggcagcctcc tgaaggaagg aagattcagt ctccactgag aggtgccgtc tggcccttcc | 1199 |
| ctgcaggcca gctgccccaa gcggggtagc agccttgaac ccacccagct gggacaccac | 1259 |
| cagaaggctcc agggctctcc ccatgagaga atcagaggga atgcaggacg tggctctatgg | 1319 |
| tgagccaacg acacagtgag aaggagcagg aagttgctgt ttctcctctg accagccac | 1379 |
| actgcaaagg aaacagacgc catcctacac ctatcagccc tgcctgccag gagaacagaa | 1439 |
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| Gln Leu Ala Lys Glu Gln Ser Met Ser Ser Val Gly Phe Cys Val Ile | |
| 155 160 165 | |
| aat tct gca aaa cgt ggt tat cct tta gag gat gca aca cac ata gca | 820 |
| Asn Ser Ala Lys Arg Gly Tyr Pro Leu Glu Asp Ala Thr His Ile Ala | |
| 170 175 180 185 | |
| ctt cgc act gta aga aga ttc cta gag att cat ggg gaa acc att gaa | 868 |
| Leu Arg Thr Val Arg Arg Phe Leu Glu Ile His Gly Glu Thr Ile Glu | |
| 190 195 200 | |
| aaa gta gta ttt gct gtc tct gat ctt gaa gag ggt act tac caa aag | 916 |
| Lys Val Val Phe Ala Val Ser Asp Leu Glu Glu Gly Thr Tyr Gln Lys | |
| 205 210 215 | |
| ctg cta cct ctc tac ttc cca agg tca tta aaa gag gag aat cga tca | 964 |
| Leu Leu Pro Leu Tyr Phe Pro Arg Ser Leu Lys Glu Glu Asn Arg Ser | |
| 220 225 230 | |
| ttg ccc tac cta cct gca gat att gga aat gca gaa ggg gag cct gtg | 1012 |
| Leu Pro Tyr Leu Pro Ala Asp Ile Gly Asn Ala Glu Gly Glu Pro Val | |
| 235 240 245 | |
| gta cct gaa cga cag att aga ata agt gag aaa cct ggt gct cca gaa | 1060 |
| Val Pro Glu Arg Gln Ile Arg Ile Ser Glu Lys Pro Gly Ala Pro Glu | |
| 250 255 260 265 | |
| gat aac caa gaa gag gag gat gaa ggc ttg gga gtt gat ctc tct ttc | 1108 |
| Asp Asn Gln Glu Glu Glu Asp Glu Gly Leu Gly Val Asp Leu Ser Phe | |
| 270 275 280 | |
| att ggc tct cat gct ttt gct cga atg gaa gga gat att gac aag caa | 1156 |
| Ile Gly Ser His Ala Phe Ala Arg Met Glu Gly Asp Ile Asp Lys Gln | |
| 285 290 295 | |
| aga aaa ctg atc ctt cag gga caa tta tca gag gca gct ctg cag aag | 1204 |
| Arg Lys Leu Ile Leu Gln Gly Gln Leu Ser Glu Ala Ala Leu Gln Lys | |
| 300 305 310 | |
| cag cat caa aga aat tat aat cgc tgg tta tgt caa gca cga gct gag | 1252 |
| Gln His Gln Arg Asn Tyr Asn Arg Trp Leu Cys Gln Ala Arg Ala Glu | |
| 315 320 325 | |
| gat ctg tct gat att gct tct cta aaa gcc tta tac caa aca ggt gtt | 1300 |
| Asp Leu Ser Asp Ile Ala Ser Leu Lys Ala Leu Tyr Gln Thr Gly Val | |
| 330 335 340 345 | |
| gat aac tgt ggt cga aca gtg atg gtg gta gtt gga aga aac att cct | 1348 |
| Asp Asn Cys Gly Arg Thr Val Met Val Val Val Gly Arg Asn Ile Pro | |
| 350 355 360 | |
| gta aca tta ata gat atg gac aag gct ctc tta tat ttc att cat gta | 1396 |
| Val Thr Leu Ile Asp Met Asp Lys Ala Leu Leu Tyr Phe Ile His Val | |
| 365 370 375 | |
| atg gat cac att gct gtg aag gag tat gta tta gtg tat ttt cac acc | 1444 |
| Met Asp His Ile Ala Val Lys Glu Tyr Val Leu Val Tyr Phe His Thr | |
| 380 385 390 | |
| ctg acc agc gaa tac aat cac ctg gac tcc gac ttc ctg aag aaa ctc | 1492 |
| Leu Thr Ser Glu Tyr Asn His Leu Asp Ser Asp Phe Leu Lys Lys Leu | |
| 395 400 405 | |

tac gat gtt gtt gat gtc aag tac aag agg aat ttg aag gct gtt tat 1540
 Tyr Asp Val Val Asp Val Lys Tyr Lys Arg Asn Leu Lys Ala Val Tyr
 410 415 420 425
 ttt gta cat ccc aca ttt cgt tca aag gtg tca aca tgg ttt ttt acc 1588
 Phe Val His Pro Thr Phe Arg Ser Lys Val Ser Thr Trp Phe Phe Thr
 430 435 440
 acc ttt tct gtc tca gga ctg aag gac aaa atc cac cat gtg gac agc 1636
 Thr Phe Ser Val Ser Gly Leu Lys Asp Lys Ile His His Val Asp Ser
 445 450 455
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 Leu His Gln Leu Phe Ser Ala Ile Ser Pro Glu Gln Ile Asp Phe Pro
 460 465 470
 cct ttt gtc ctt gaa tat gat gcc agg gaa aac ggg cct tac tat aca 1732
 Pro Phe Val Leu Glu Tyr Asp Ala Arg Glu Asn Gly Pro Tyr Tyr Thr
 475 480 485
 tca tat ccc cca tca cca gat ttg tga cctgc catctttcag tgcttcttgg 1784
 Ser Tyr Pro Pro Ser Pro Asp Leu *
 490 495
 ttcccaggat gccacttctt ccacgaatag ctacctgttg aagtgatatt cattgttget 1844
 gtacagatcc agagagcctt ttgtccccac ctctctggta tttttttatt gactgtatat 1904
 tttctggcac ataagcaatc taaaaatggg aggccattct gaactgcaca cattttaaat 1964
 ttgtatatatt atatgaaatg gaaatgttca ttttttagatt gttaatagaa attggggagc 2024
 aacttttgag tatcttttagt ttcttgaagg acaccgaatt ctccattaga taaaccacca 2084
 agactgttca catcatctct ctaacattgc acgcttctct tgtgtactta agtgattctc 2144
 gaaatataca gaaccaatgt atgctaacca gaaaaaaaaa aaa 2187

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 atg gct cca gaa gag gac gct gga ggg gag gcc tta ggg ggc agt ttc 285
 Met Ala Pro Glu Glu Asp Ala Gly Gly Glu Ala Leu Gly Gly Ser Phe
 1 5 10 15
 tgg gag gct ggc aac tac agg cgc acg gta cag cgg gtg gag gac ggg 333

| | | | | | | | | | | | | | | | | |
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| Trp | Glu | Ala | Gly | Asn | Tyr | Arg | Arg | Thr | Val | Gln | Arg | Val | Glu | Asp | Gly | |
| | | | 20 | | | | | 25 | | | | | 30 | | | |
| cac | cgg | ctg | tgc | ggg | gac | ctg | gtc | agc | tgc | ttc | cag | gag | cgc | gcc | cgc | 381 |
| His | Arg | Leu | Cys | Gly | Asp | Leu | Val | Ser | Cys | Phe | Gln | Glu | Arg | Ala | Arg | |
| | | 35 | | | | | 40 | | | | | 45 | | | | |
| atc | gag | aag | gct | tat | gcc | cag | cag | ttg | gct | gac | tgg | gcc | cga | aag | tgg | 429 |
| Ile | Glu | Lys | Ala | Tyr | Ala | Gln | Gln | Leu | Ala | Asp | Trp | Ala | Arg | Lys | Trp | |
| | 50 | | | | | 55 | | | | | 60 | | | | | |
| agg | ggg | acc | gtg | gag | aag | ggc | ccc | cag | tat | ggc | aca | ctg | gag | aag | gcc | 477 |
| Arg | Gly | Thr | Val | Glu | Lys | Gly | Pro | Gln | Tyr | Gly | Thr | Leu | Glu | Lys | Ala | |
| | 65 | | | | 70 | | | | | 75 | | | | | 80 | |
| tgg | cat | gcc | ttt | ttc | acg | gcg | gct | gag | cgg | ctg | agc | gcg | ctg | cac | ctg | 525 |
| Trp | His | Ala | Phe | Phe | Thr | Ala | Ala | Glu | Arg | Leu | Ser | Ala | Leu | His | Leu | |
| | | | | 85 | | | | | 90 | | | | | 95 | | |
| gag | gtg | cgg | gag | aag | ctg | caa | ggg | cag | gac | agt | gag | cgg | gtg | cgc | gcc | 573 |
| Glu | Val | Arg | Glu | Lys | Leu | Gln | Gly | Gln | Asp | Ser | Glu | Arg | Val | Arg | Ala | |
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| tgg | cag | cgg | ggg | gct | ttc | cac | cgg | cct | gtg | ctg | ggc | ggc | ttc | cgc | gag | 621 |
| Trp | Gln | Arg | Gly | Ala | Phe | His | Arg | Pro | Val | Leu | Gly | Gly | Phe | Arg | Glu | |
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| agc | cgg | gcg | gcc | gag | gac | ggc | ttc | cgc | aag | gcc | cag | aag | ccc | tgg | ctg | 669 |
| Ser | Arg | Ala | Ala | Glu | Asp | Gly | Phe | Arg | Lys | Ala | Gln | Lys | Pro | Trp | Leu | |
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| aag | agg | ctg | aag | gag | gtt | gag | gct | tcc | aag | aaa | agc | tac | cac | gca | gcc | 717 |
| Lys | Arg | Leu | Lys | Glu | Val | Glu | Ala | Ser | Lys | Lys | Ser | Tyr | His | Ala | Ala | |
| | 145 | | | | 150 | | | | 155 | | | | | | 160 | |
| cgg | aag | gat | gag | aag | acc | gcc | cag | acg | agg | gag | agc | cac | gca | aag | gca | 765 |
| Arg | Lys | Asp | Glu | Lys | Thr | Ala | Gln | Thr | Arg | Glu | Ser | His | Ala | Lys | Ala | |
| | | | | 165 | | | | | 170 | | | | | 175 | | |
| gac | agc | gcc | gtc | tcc | cag | gag | cag | ctg | cgc | aaa | ctg | cag | gaa | cgg | gtg | 813 |
| Asp | Ser | Ala | Val | Ser | Gln | Glu | Gln | Leu | Arg | Lys | Leu | Gln | Glu | Arg | Val | |
| | | | 180 | | | | | 185 | | | | | 190 | | | |
| gaa | cgc | tgt | gcc | aag | gag | gcc | gag | aag | aca | aaa | gct | cag | tat | gag | cag | 861 |
| Glu | Arg | Cys | Ala | Lys | Glu | Ala | Glu | Lys | Thr | Lys | Ala | Gln | Tyr | Glu | Gln | |
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| acg | ctg | gca | gag | ctg | cat | cgc | tac | act | cca | cgc | tac | atg | gag | gac | atg | 909 |
| Thr | Leu | Ala | Glu | Leu | His | Arg | Tyr | Thr | Pro | Arg | Tyr | Met | Glu | Asp | Met | |
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| gaa | cag | gcc | ttt | gag | acc | tgc | cag | gcc | gcc | gag | cgc | cag | cgg | ctt | ctt | 957 |
| Glu | Gln | Ala | Phe | Glu | Thr | Cys | Gln | Ala | Ala | Glu | Arg | Gln | Arg | Leu | Leu | |
| | 225 | | | | 230 | | | | 235 | | | | | | 240 | |
| ttc | ttc | aag | gat | atg | ctg | ctc | acc | tta | cac | cag | cac | ctg | gac | ctt | tcc | 1005 |
| Phe | Phe | Lys | Asp | Met | Leu | Leu | Thr | Leu | His | Gln | His | Leu | Asp | Leu | Ser | |
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| agc | agt | gag | aag | ttc | cat | gaa | ctc | cac | cgt | gac | ttg | cac | cag | ggc | att | 1053 |
| Ser | Ser | Glu | Lys | Phe | His | Glu | Leu | His | Arg | Asp | Leu | His | Gln | Gly | Ile | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| gag | gca | gcc | agt | gac | gaa | gag | gat | ctg | cgc | tgg | tgg | cgc | agc | acc | cac | 1101 |

| | | | | | | | | | | | | | | | | |
|-------------|-------------|------------|-------------|------------|------------|-----|-----|-----|-------|------------|------------|-----|-----|-----|-----|------|
| Glu | Ala | Ala | Ser | Asp | Glu | Glu | Asp | Leu | Arg | Trp | Trp | Arg | Ser | Thr | His | |
| | 275 | | | | | | 280 | | | | | 285 | | | | |
| ggg | cca | ggc | atg | gcc | atg | aac | tgg | cca | cag | ttc | gag | gag | tgg | tcc | ttg | 1149 |
| Gly | Pro | Gly | Met | Ala | Met | Asn | Trp | Pro | Gln | Phe | Glu | Glu | Trp | Ser | Leu | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| gac | aca | cag | agg | aca | atc | agc | cgg | aaa | gag | aag | ggg | ggc | cgg | agc | cct | 1197 |
| Asp | Thr | Gln | Arg | Thr | Ile | Ser | Arg | Lys | Glu | Lys | Gly | Gly | Arg | Ser | Pro | |
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| gat | gag | gtt | acc | ctg | acc | agc | att | gtg | cct | aca | aga | gat | ggc | acc | gca | 1245 |
| Asp | Glu | Val | Thr | Leu | Thr | Ser | Ile | Val | Pro | Thr | Arg | Asp | Gly | Thr | Ala | |
| | | | | 325 | | | | 330 | | | | | | 335 | | |
| ccc | cca | ccc | cag | tcc | ccg | ggg | tcc | cca | ggc | acg | ggg | cag | gat | gag | gag | 1293 |
| Pro | Pro | Pro | Gln | Ser | Pro | Gly | Ser | Pro | Gly | Thr | Gly | Gln | Asp | Glu | Glu | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| tgg | tca | gat | gaa | gag | agt | ccc | cgg | aag | gct | gcc | acc | ggg | gtt | cgg | gtg | 1341 |
| Trp | Ser | Asp | Glu | Glu | Ser | Pro | Arg | Lys | Ala | Ala | Thr | Gly | Val | Arg | Val | |
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| agg | gca | ctc | tat | gac | tac | gct | ggc | cag | gaa | gct | gat | gag | ctg | agc | ttc | 1389 |
| Arg | Ala | Leu | Tyr | Asp | Tyr | Ala | Gly | Gln | Glu | Ala | Asp | Glu | Leu | Ser | Phe | |
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| cga | gca | ggg | gag | gag | ctg | ctg | aag | atg | agt | gag | gag | gac | gag | cag | ggc | 1437 |
| Arg | Ala | Gly | Glu | Glu | Leu | Leu | Lys | Met | Ser | Glu | Glu | Asp | Glu | Gln | Gly | |
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| tgg | tgc | caa | ggc | cag | ttg | cag | agt | ggc | cgc | att | ggc | ctg | tac | cct | gcc | 1485 |
| Trp | Cys | Gln | Gly | Gln | Leu | Gln | Ser | Gly | Arg | Ile | Gly | Leu | Tyr | Pro | Ala | |
| | | | | 405 | | | | 410 | | | | | | 415 | | |
| aac | tac | gtg | gag | tgt | gtg | ggc | gcc | tga | gtgtc | ctgacagccc | ttctgcaacg | | | | | 1537 |
| Asn | Tyr | Val | Glu | Cys | Val | Gly | Ala | * | | | | | | | | |
| | | 420 | | | | 425 | | | | | | | | | | |
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Ala Tyr Asp Asp Ser Val Lys Lys Glu Asp Cys Phe Asp Gly Asp His
5 10 15
acc ttt gag gac ata gga ctt gca gct ggc cga agc caa cga gag aaa 271
Thr Phe Glu Asp Ile Gly Leu Ala Ala Gly Arg Ser Gln Arg Glu Lys
20 25 30
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Lys Arg Ser Tyr Lys Asp Phe Leu Arg Glu Glu Glu Glu Ile Ala Ala
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cag gtc agg aat tct tcc aag aag aag ttg aag gat agt gaa ctt tac 367
Gln Val Arg Asn Ser Ser Lys Lys Lys Leu Lys Asp Ser Glu Leu Tyr
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Phe Leu Gly Thr Asp Thr His Lys Lys Lys Arg Lys His Ser Ser Asp
70 75 80
gat tac tac tat gga gac att tcg tct ttg gaa tcg tca cag aag aaa 463
Asp Tyr Tyr Tyr Gly Asp Ile Ser Ser Leu Glu Ser Ser Gln Lys Lys
85 90 95
aag aaa aag tcc agc cca cag tct act gat aca gct atg gac ctg ttg 511
Lys Lys Lys Ser Ser Pro Gln Ser Thr Asp Thr Ala Met Asp Leu Leu
100 105 110
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Lys Ala Ile Thr Ser Pro Leu Ala Ala Gly Ser Lys Pro Ser Lys Lys
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Thr Gly Glu Lys Ser Ser Gly Ser Ser Ser His Ser Glu Ser Lys Lys
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Asn Thr Glu Thr Leu Thr Leu Arg Glu Pro Asp Gly Leu Lys Met Lys
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Leu Ile Leu Ser Pro Lys Glu Lys Gly Ser Ser Ser Val Asp Glu Glu
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Ser Phe Gln Tyr Pro Ser Gln Gln Ala Thr Val Lys Lys Ser Ser Lys

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| aaa tca gct cgg gat gag cag ggt gct tta ctc cta gga cat gag tta | | | | 895 |
| Lys Ser Ala Arg Asp Glu Gln Gly Ala Leu Leu Leu Gly His Glu Leu | | | | |
| | 230 | 235 | 240 | |
| cag agc ttt ctg aaa aca gcc cgg aaa aag cac aag tca tcc tca gac | | | | 943 |
| Gln Ser Phe Leu Lys Thr Ala Arg Lys Lys His Lys Ser Ser Ser Asp | | | | |
| | 245 | 250 | 255 | |
| gca cat tca tct cct ggc cct gaa ggc tgt ggg tct gac gcc tcc cag | | | | 991 |
| Ala His Ser Ser Pro Gly Pro Glu Gly Cys Gly Ser Asp Ala Ser Gln | | | | |
| | 260 | 265 | 270 | |
| ttc gca gag tcc cac agt gct aac ctt gat ctt tca ggg ctt gaa cct | | | | 1039 |
| Phe Ala Glu Ser His Ser Ala Asn Leu Asp Leu Ser Gly Leu Glu Pro | | | | |
| | 275 | 280 | 285 | |
| att ctg gta gaa tca gac tca tcc tct ggt ggg gaa cta gag gct ggg | | | | 1087 |
| Ile Leu Val Glu Ser Asp Ser Ser Ser Gly Gly Glu Leu Glu Ala Gly | | | | |
| | 290 | 295 | 300 | 305 |
| gag tta gtg ata gat gat tct tac cga gaa atc aag aag aaa aag aag | | | | 1135 |
| Glu Leu Val Ile Asp Asp Ser Tyr Arg Glu Ile Lys Lys Lys Lys Lys | | | | |
| | 310 | 315 | 320 | |
| tca aag aag agc aaa aag aag aaa gac aag gag aag cat aaa gag aag | | | | 1183 |
| Ser Lys Lys Ser Lys Lys Lys Lys Asp Lys Glu Lys His Lys Glu Lys | | | | |
| | 325 | 330 | 335 | |
| cga cac tcc aag tcc aag aga agt tta gga ctt tct gcc gtg cca gtg | | | | 1231 |
| Arg His Ser Lys Ser Lys Arg Ser Leu Gly Leu Ser Ala Val Pro Val | | | | |
| | 340 | 345 | 350 | |
| gga gag gtc aca gtg aca tct ggc cct cct ccc agc atc cca tac gct | | | | 1279 |
| Gly Glu Val Thr Val Thr Ser Gly Pro Pro Pro Ser Ile Pro Tyr Ala | | | | |
| | 355 | 360 | 365 | |
| gga gca gca gca cct ccc ctg cca ctt cct ggc ctc cac aca gat ggg | | | | 1327 |
| Gly Ala Ala Ala Pro Pro Leu Pro Leu Pro Gly Leu His Thr Asp Gly | | | | |
| | 370 | 375 | 380 | 385 |
| cat agt gaa aaa aaa aaa aaa aaa gag aag gac aaa gag aga gag | | | | 1375 |
| His Ser Glu Lys Lys Lys Lys Lys Lys Glu Lys Asp Lys Glu Arg Glu | | | | |
| | 390 | 395 | 400 | |
| aga gga gaa aag cca aaa aag aag aac atg tcg gcc tac cag gtg ttc | | | | 1423 |
| Arg Gly Glu Lys Pro Lys Lys Lys Asn Met Ser Ala Tyr Gln Val Phe | | | | |
| | 405 | 410 | 415 | |
| tgt aaa gag tat cgc gtg acc att gtg gct gac cat cca ggt ata gat | | | | 1471 |
| Cys Lys Glu Tyr Arg Val Thr Ile Val Ala Asp His Pro Gly Ile Asp | | | | |
| | 420 | 425 | 430 | |
| ttt ggg gaa ctt agt aaa aaa ctg gct gag gtg tgg aag caa tta cca | | | | 1519 |
| Phe Gly Glu Leu Ser Lys Lys Leu Ala Glu Val Trp Lys Gln Leu Pro | | | | |
| | 435 | 440 | 445 | |
| gaa aaa gac aaa ctg att tgg aag caa aaa gct cag tat ctg cag cac | | | | 1567 |
| Glu Lys Asp Lys Leu Ile Trp Lys Gln Lys Ala Gln Tyr Leu Gln His | | | | |
| | 450 | 455 | 460 | 465 |
| aaa cag aac aaa gca gaa gcc aca act gtg aaa agg aaa gca tcc agc | | | | 1615 |
| Lys Gln Asn Lys Ala Glu Ala Thr Thr Val Lys Arg Lys Ala Ser Ser | | | | |

| | 470 | 475 | 480 | |
|---|-----|-----|-----|------|
| tca gaa ggt tcc atg aaa gtc aaa gcc tct tct gta gga gta ctg tca | | | | 1663 |
| Ser Glu Gly Ser Met Lys Val Lys Ala Ser Ser Val Gly Val Leu Ser | | | | |
| | 485 | 490 | 495 | |
| ccc cag aag aag tcc cca ccc acc acc atg ctg tta cca gcc tca cca | | | | 1711 |
| Pro Gln Lys Lys Ser Pro Pro Thr Thr Met Leu Leu Pro Ala Ser Pro | | | | |
| | 500 | 505 | 510 | |
| gcc aaa gcc cct gag aca gag ccc att gat gtt gct gct cat ctt cag | | | | 1759 |
| Ala Lys Ala Pro Glu Thr Glu Pro Ile Asp Val Ala Ala His Leu Gln | | | | |
| | 515 | 520 | 525 | |
| ctg ttg gga gag tcc cta agc ctc att gga cac cgt ctg cag gaa act | | | | 1807 |
| Leu Leu Gly Glu Ser Leu Ser Leu Ile Gly His Arg Leu Gln Glu Thr | | | | |
| | 530 | 535 | 540 | 545 |
| gag ggt atg gtg gct gtg tct ggc agt ttg tca gtg ctt ctg gat tcc | | | | 1855 |
| Glu Gly Met Val Ala Val Ser Gly Ser Leu Ser Val Leu Leu Asp Ser | | | | |
| | 550 | 555 | 560 | |
| att atc tgt gcc ctt ggc ccc ttg gca tgt ctc acc aca caa cta cct | | | | 1903 |
| Ile Ile Cys Ala Leu Gly Pro Leu Ala Cys Leu Thr Thr Gln Leu Pro | | | | |
| | 565 | 570 | 575 | |
| gaa ttg aat ggc tgt ccc aaa cag gtc ttg tca aac aca tta gac aac | | | | 1951 |
| Glu Leu Asn Gly Cys Pro Lys Gln Val Leu Ser Asn Thr Leu Asp Asn | | | | |
| | 580 | 585 | 590 | |
| att gct tac acc acg ccg gga ctg tga cagca aagaatcctg ggacagaaac | | | | 2003 |
| Ile Ala Tyr Thr Thr Pro Gly Leu * | | | | |
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 cttgccttgt cacttgacgc ttccgccctc tgctttgatg gctgaggtga actcatgttc 1820
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 ccgcgcccgg agcatctccc tggaggaacg gagacaaagg aggattc atg tcc aaa 176
 Met Ser Lys
 1
 ggg ctc cca gag acc agg acg gac gca gcc atg tca gag ctg gtg cct 224
 Gly Leu Pro Glu Thr Arg Thr Asp Ala Ala Met Ser Glu Leu Val Pro
 5 10 15
 gag ccc agg cct aag cca gcg gtg ccc atg aag ccc atg agc atc aac 272
 Glu Pro Arg Pro Lys Pro Ala Val Pro Met Lys Pro Met Ser Ile Asn
 20 25 30 35
 tcc aac ctg ctg ggc tac atc ggc atc gac acc atc atc gag cag atg 320
 Ser Asn Leu Leu Gly Tyr Ile Gly Ile Asp Thr Ile Ile Glu Gln Met
 40 45 50
 cgc aag aag acc atg aag acc ggt ttc gac ttc aac atc atg gtc gtt 368
 Arg Lys Lys Thr Met Lys Thr Gly Phe Asp Phe Asn Ile Met Val Val
 55 60 65

| | |
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| ggc cag agt gga ctg ggc aaa tca acg ctg gtc aac acg ctc ttc aaa Gly Gln Ser Gly Leu Gly Lys Ser Thr Leu Val Asn Thr Leu Phe Lys 70 75 80 | 416 |
| tcc caa gtg agc cgc aag gcc tcc agc tgg aac cgg gag gag aag atc Ser Gln Val Ser Arg Lys Ala Ser Ser Trp Asn Arg Glu Glu Lys Ile 85 90 95 | 464 |
| ccc aag aca gtg gag atc aaa gct atc ggg cat gtg ata gag gaa ggc Pro Lys Thr Val Glu Ile Lys Ala Ile Gly His Val Ile Glu Glu Gly 100 105 110 115 | 512 |
| ggc gtc aaa atg aag ctg acc gtc atc gac acc cca ggc ttt gga gac Gly Val Lys Met Lys Leu Thr Val Ile Asp Thr Pro Gly Phe Gly Asp 120 125 130 | 560 |
| caa atc aac aat gaa aac tgc tgg gag ccc att gag aag tac atc aat Gln Ile Asn Asn Glu Asn Cys Trp Glu Pro Ile Glu Lys Tyr Ile Asn 135 140 145 | 608 |
| gag cag tac gag aag ttc ctg aag gag gag gtc aac atc gcc agg aag Glu Gln Tyr Glu Lys Phe Leu Lys Glu Glu Val Asn Ile Ala Arg Lys 150 155 160 | 656 |
| aaa cgc atc cct gac act cgt gtc cac tgc tgc ctt tac ttc atc tct Lys Arg Ile Pro Asp Thr Arg Val His Cys Cys Leu Tyr Phe Ile Ser 165 170 175 | 704 |
| ccc aca gga cac tcc ttg cga cct ctg gat ctt gag ttc atg aaa cac Pro Thr Gly His Ser Leu Arg Pro Leu Asp Leu Glu Phe Met Lys His 180 185 190 195 | 752 |
| ctc agc aag gtt gtg aac atc atc cct gtc att gct aag gct gac acc Leu Ser Lys Val Val Asn Ile Ile Pro Val Ile Ala Lys Ala Asp Thr 200 205 210 | 800 |
| atg acc ctg gag gag aag tct gaa ttc aag caa agg gtt cgc aag gag Met Thr Leu Glu Glu Lys Ser Glu Phe Lys Gln Arg Val Arg Lys Glu 215 220 225 | 848 |
| ctt gaa gta aat ggc att gaa ttc tac ccc cag aag gaa ttt gat gag Leu Glu Val Asn Gly Ile Glu Phe Tyr Pro Gln Lys Glu Phe Asp Glu 230 235 240 | 896 |
| gat ttg gag gat aag acg gag aat gac aaa atc agg cag gag agc atg Asp Leu Glu Asp Lys Thr Glu Asn Asp Lys Ile Arg Gln Glu Ser Met 245 250 255 | 944 |
| cct ttt gct gtg gtg gga agt gac aag gag tac caa gtg aat ggc aag Pro Phe Ala Val Val Gly Ser Asp Lys Glu Tyr Gln Val Asn Gly Lys 260 265 270 275 | 992 |
| agg gtc ctc ggc cga aaa act cca tgg ggg atc atc gaa gtg gaa aac Arg Val Leu Gly Arg Lys Thr Pro Trp Gly Ile Ile Glu Val Glu Asn 280 285 290 | 1040 |
| ctc aac cac tgt gag ttt gcc ctg ctt cga gac ttt gtc atc agg acc Leu Asn His Cys Glu Phe Ala Leu Leu Arg Asp Phe Val Ile Arg Thr 295 300 305 | 1088 |
| cac ctc cag gac ctc aag gaa gtg aca cac aac atc cac tat gag act His Leu Gln Asp Leu Lys Glu Val Thr His Asn Ile His Tyr Glu Thr 310 315 320 | 1136 |

tac agg gcc aag cgg ctc aat gac aat gga ggc ctc cct ccg gtg agc 1184
 Tyr Arg Ala Lys Arg Leu Asn Asp Asn Gly Gly Leu Pro Pro Val Ser
 325 330 335

 gtg gac aca gag gaa agc cac gac agt aac cca tga cgac cacttctctg 1234
 Val Asp Thr Glu Glu Ser His Asp Ser Asn Pro *
 340 345 350

 tgtcatcaca cataccact tcacacacac acatcccaaa taccaccacc aaccaccttc 1294
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 gtgtgtgtgt gtgtgtgtgt gtgtgtgtgt gacagagaga gagcgagaga gcctgtgtgt 1414
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 tcctccatgc ctgtccatta tctgtctcct ttccttgtgt cccaaaacaa agctgtttgc 1534
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<220>
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 Met
 1

 ttg cgc tgg ctg cgg gac ttc gtg ctg ccc acc gcg gcc tgc cag gac 163
 Leu Arg Trp Leu Arg Asp Phe Val Leu Pro Thr Ala Ala Cys Gln Asp
 5 10 15

 gcg gag cag ccg atg cgc tac gag acc ctc ttc cag gca ctg gac cgc 211
 Ala Glu Gln Pro Met Arg Tyr Glu Thr Leu Phe Gln Ala Leu Asp Arg
 20 25 30

 aat ggg gac gga gtg gtg gac atc ggc gag ctg cag gag ggg ctc agg 259
 Asn Gly Asp Gly Val Val Asp Ile Gly Glu Leu Gln Glu Gly Leu Arg
 35 40 45

 aac ctg ggc atc cct ctg ggc cag gac gcc gag gag aaa att ttt act 307
 Asn Leu Gly Ile Pro Leu Gly Gln Asp Ala Glu Glu Lys Ile Phe Thr
 50 55 60 65

 act gga gat gtc aac aaa gat ggg aag ctg gat ttt gaa gaa ttt atg 355
 Thr Gly Asp Val Asn Lys Asp Gly Lys Leu Asp Phe Glu Glu Phe Met
 70 75 80

 aag tac ctt aaa gac cat gag aag aaa atg aaa ttg gca ttt aag agt 403
 Lys Tyr Leu Lys Asp His Glu Lys Lys Met Lys Leu Ala Phe Lys Ser
 85 90 95

| | |
|---|------|
| tta gac aaa aat aat gat gga aaa att gag gct tca gaa att gtc cag Leu Asp Lys Asn Asn Asp Gly Lys Ile Glu Ala Ser Glu Ile Val Gln 100 105 110 | 451 |
| tct ctc cag aca ctg ggt ctg act att tct gaa caa caa gca gag ttg Ser Leu Gln Thr Leu Gly Leu Thr Ile Ser Glu Gln Gln Ala Glu Leu 115 120 125 | 499 |
| att ctt caa agc att gat gtt gat ggg aca atg aca gtg gac tgg aat Ile Leu Gln Ser Ile Asp Val Asp Gly Thr Met Thr Val Asp Trp Asn 130 135 140 145 | 547 |
| gaa tgg aga gac tac ttc tta ttt aat cct gtt aca gac att gag gaa Glu Trp Arg Asp Tyr Phe Leu Phe Asn Pro Val Thr Asp Ile Glu Glu 150 155 160 | 595 |
| att atc cgt ttc tgg aaa cat tct aca gga att gac ata ggg gat agc Ile Ile Arg Phe Trp Lys His Ser Thr Gly Ile Asp Ile Gly Asp Ser 165 170 175 | 643 |
| tta act att cca gat gaa ttc acg gaa gac gaa aaa aaa tcc gga caa Leu Thr Ile Pro Asp Glu Phe Thr Glu Asp Glu Lys Lys Ser Gly Gln 180 185 190 | 691 |
| tgg tgg agg cag ctt ttg gca gga ggc att gct ggt gct gtc tct cga Trp Trp Arg Gln Leu Leu Ala Gly Gly Ile Ala Gly Ala Val Ser Arg 195 200 205 | 739 |
| aca agc act gcc cct ttg gac cgt ctg aaa atc atg atg cag gtt cac Thr Ser Thr Ala Pro Leu Asp Arg Leu Lys Ile Met Met Gln Val His 210 215 220 225 | 787 |
| ggt tca aaa tca gac aaa atg aac ata ttt ggt ggc ttt cga cag atg Gly Ser Lys Ser Asp Lys Met Asn Ile Phe Gly Gly Phe Arg Gln Met 230 235 240 | 835 |
| gta aaa gaa gga ggt atc cgc tcg ctt tgg agg gga aat ggt aca aac Val Lys Glu Gly Gly Ile Arg Ser Leu Trp Arg Gly Asn Gly Thr Asn 245 250 255 | 883 |
| gtc atc aaa att gct cct gag aca gct gtt aaa ttc tgg gca tat gaa Val Ile Lys Ile Ala Pro Glu Thr Ala Val Lys Phe Trp Ala Tyr Glu 260 265 270 | 931 |
| cag tac aag aag tta ctt act gaa gaa gga caa aaa ata gga aca ttt Gln Tyr Lys Lys Leu Leu Thr Glu Glu Gly Gln Lys Ile Gly Thr Phe 275 280 285 | 979 |
| gag aga ttt att tct ggt tcc atg gct gga gca act gca cag act ttt Glu Arg Phe Ile Ser Gly Ser Met Ala Gly Ala Thr Ala Gln Thr Phe 290 295 300 305 | 1027 |
| ata tat cca atg gag gtt atg aaa acc agg ctg gct gta ggc aaa act Ile Tyr Pro Met Glu Val Met Lys Thr Arg Leu Ala Val Gly Lys Thr 310 315 320 | 1075 |
| ggg cag tac tct gga ata tat gat tgt gcc aag aag att ttg aaa cat Gly Gln Tyr Ser Gly Ile Tyr Asp Cys Ala Lys Lys Ile Leu Lys His 325 330 335 | 1123 |
| gaa ggc ttg gga gct ttt tac aaa ggc tat gtt ccc aat tta tta ggt Glu Gly Leu Gly Ala Phe Tyr Lys Gly Tyr Val Pro Asn Leu Leu Gly 340 345 350 | 1171 |

| | |
|---|------|
| atc ata cct tat gca ggc ata gat ctt gct gtg tat gag ctc ttg aag Ile Ile Pro Tyr Ala Gly Ile Asp Leu Ala Val Tyr Glu Leu Leu Lys 355 360 365 | 1219 |
| tcc tat tgg ctg gat aat ttt gca aaa gat tct gta aac cct gga gtc Ser Tyr Trp Leu Asp Asn Phe Ala Lys Asp Ser Val Asn Pro Gly Val 370 375 380 385 | 1267 |
| atg gtg ttg ctg gga tgc ggt gcc tta tcc agc acc tgt ggt cag ctg Met Val Leu Leu Gly Cys Gly Ala Leu Ser Ser Thr Cys Gly Gln Leu 390 395 400 | 1315 |
| gcc agc tac cca ttg gct ttg gtg aga act cgc atg cag gct caa gcc Ala Ser Tyr Pro Leu Ala Leu Val Arg Thr Arg Met Gln Ala Gln Ala 405 410 415 | 1363 |
| atg tta gaa ggt tcc cca cag ctg aat atg gtt ggc ctc ttt cga cga Met Leu Glu Gly Ser Pro Gln Leu Asn Met Val Gly Leu Phe Arg Arg 420 425 430 | 1411 |
| att att tcc aaa gaa gga ata cca gga ctt tac aga ggc atc acc cca Ile Ile Ser Lys Glu Gly Ile Pro Gly Leu Tyr Arg Gly Ile Thr Pro 435 440 445 | 1459 |
| aac ttc atg aag gtg ctc cct gct gta ggc atc agt tat gtg gtt tat Asn Phe Met Lys Val Leu Pro Ala Val Gly Ile Ser Tyr Val Val Tyr 450 455 460 465 | 1507 |
| gaa aat atg aag caa act tta gga gta acc cag aaa tga tgttgcat Glu Asn Met Lys Gln Thr Leu Gly Val Thr Gln Lys * | 1556 |
| tttgcttttag cctgataatt gaaactttca acaatctctg gagtgacttt ttctcctcga | 1616 |
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| aatggtcact tcaaactttt gggctaaatt atatgtacac agaaatgttc aaaatcatag | 1736 |
| ttttaatgtg ttttgaaaag gccacacaat tatactttat cttttcttaa taatcctgca | 1796 |
| aatctctgcc ctgaatccga aatctgaaaa tgtactggct tgaacaaaat ttgttttgtg | 1856 |
| tgtagagtt ataaatcatt aatctttatt tcgggtgggt tacgtttatg ccagttcctt | 1916 |
| tatatttaaa tttcttggtt tatatatattt gaatgtcttt atagatttct ttaaatttcc | 1976 |
| ttatagaacc attaatagaa aatcattaca tttaaaatat accttacagc aaaagcatcc | 2036 |
| aaataagtat agggtttatg tccttatttt tctttcagct gaatacgaat gaacacagtg | 2096 |
| gtggaatttc tgaagggaag tgatgaaatt atatttatat cagtgggcac ttttccattt | 2156 |
| taccactgta ccattatttg gttcctggag ttatacacta attttcagta tattactggt | 2216 |
| aaattaccaa cacaaggcaa tttatttgaa agattccgtt tatcctgcca ttgctttgaa | 2276 |
| aagcagcagg aaacgaaatc ctttgacttg tatcagcttc tgcagagcat ctttgttttc | 2336 |
| ctttgtcctt tgtttcctac cttttgaatc agattccgtt ttagtcagga agacttcttg | 2396 |
| ggaccattct tagtaacctg aaatttcctt tttaattgca tgaagtggat tgatcatgag | 2456 |
| caaatgatgt tcttatttct cctcactgt tgaatatctt tgaacttgct gttttcaata | 2516 |

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gtc ctc ctg ctg cac ctg gtc ctg cag cgg tgg cta gcg gca ggc gcc      99
Val Leu Leu Leu His Leu Val Leu Gln Arg Trp Leu Ala Ala Gly Ala
   10               15               20

cag gcc acc ccc cag gtc ttt gac ctt ctc cca tct tcc agt cag agg      147
Gln Ala Thr Pro Gln Val Phe Asp Leu Leu Pro Ser Ser Ser Gln Arg
   25               30               35               40

cta aac cca ggc gct ctg ctg cca gtc ctg aca gac ccc gcc ctg aat      195
Leu Asn Pro Gly Ala Leu Leu Pro Val Leu Thr Asp Pro Ala Leu Asn
               45               50               55

gat ctc tat gtg att tcc acc ttc aag ctg cag act aaa agt tca gcc      243
Asp Leu Tyr Val Ile Ser Thr Phe Lys Leu Gln Thr Lys Ser Ser Ala
   60               65               70

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| | |
|---|------|
| acc atc ttc ggt ctt tac tct tca act gac aac agt aaa tat ttt gaa | 291 |
| Thr Ile Phe Gly Leu Tyr Ser Ser Thr Asp Asn Ser Lys Tyr Phe Glu | |
| 75 80 85 | |
| ttt act gtg atg gga cgc tta agc aaa gcc atc ctc cgt tac ctg aag | 339 |
| Phe Thr Val Met Gly Arg Leu Ser Lys Ala Ile Leu Arg Tyr Leu Lys | |
| 90 95 100 | |
| aac gat ggg aag gtg cat ttg gtg gtt ttc aac aac ctg cag ctg gca | 387 |
| Asn Asp Gly Lys Val His Leu Val Val Phe Asn Asn Leu Gln Leu Ala | |
| 105 110 115 120 | |
| gac gga agg cgg cac agg atc ctc ctg agg ctg agc aat ttg cag cga | 435 |
| Asp Gly Arg Arg His Arg Ile Leu Leu Arg Leu Ser Asn Leu Gln Arg | |
| 125 130 135 | |
| ggg gcc ggc tcc cta gag ctc tac ctg gac tgc atc cag gtg gat tcc | 483 |
| Gly Ala Gly Ser Leu Glu Leu Tyr Leu Asp Cys Ile Gln Val Asp Ser | |
| 140 145 150 | |
| gtt cac aat ctc ccc agg gcc ttt gct ggc ccc tcc cag aaa cct gag | 531 |
| Val His Asn Leu Pro Arg Ala Phe Ala Gly Pro Ser Gln Lys Pro Glu | |
| 155 160 165 | |
| acc att gaa ttg agg act ttc cag agg aag cca cag gac ttc ttg gaa | 579 |
| Thr Ile Glu Leu Arg Thr Phe Gln Arg Lys Pro Gln Asp Phe Leu Glu | |
| 170 175 180 | |
| gag ctg aag ctg gtg gtg aga ggc tca ctg ttc cag gtg gcc agc ctg | 627 |
| Glu Leu Lys Leu Val Val Arg Gly Ser Leu Phe Gln Val Ala Ser Leu | |
| 185 190 195 200 | |
| caa gac tgc ttc ctg cag cag agt gag cca ctg gct gcc aca ggc aca | 675 |
| Gln Asp Cys Phe Leu Gln Gln Ser Glu Pro Leu Ala Ala Thr Gly Thr | |
| 205 210 215 | |
| ggg gac ttt aac cgg cag ttc ttg ggt caa atg aca caa tta aac caa | 723 |
| Gly Asp Phe Asn Arg Gln Phe Leu Gly Gln Met Thr Gln Leu Asn Gln | |
| 220 225 230 | |
| ctc ctg gga gag gtg aag gac ctt ctg aga cag cag gtt aag gaa aca | 771 |
| Leu Leu Gly Glu Val Lys Asp Leu Leu Arg Gln Gln Val Lys Glu Thr | |
| 235 240 245 | |
| tca ttt ttg cga aac acc ata gct gaa tgc cag gct tgc ggt cct ctc | 819 |
| Ser Phe Leu Arg Asn Thr Ile Ala Glu Cys Gln Ala Cys Gly Pro Leu | |
| 250 255 260 | |
| aag ttt cag tct ccg acc cca agc acg gtg gtc gcc ccg gct ccc cct | 867 |
| Lys Phe Gln Ser Pro Thr Pro Ser Thr Val Val Ala Pro Ala Pro Pro | |
| 265 270 275 280 | |
| gca ccg cca aca cgc cca cct cgt cgg tgt gac tcc aac cca tgt ttc | 915 |
| Ala Pro Pro Thr Arg Pro Pro Arg Arg Cys Asp Ser Asn Pro Cys Phe | |
| 285 290 295 | |
| cga ggt gtc caa tgt acc gac agt aga gat ggc ttc cag tgt ggg ccc | 963 |
| Arg Gly Val Gln Cys Thr Asp Ser Arg Asp Gly Phe Gln Cys Gly Pro | |
| 300 305 310 | |
| tgc ccc gag ggc tac aca gga aac ggg atc acc tgt att gat gtt gat | 1011 |
| Cys Pro Glu Gly Tyr Thr Gly Asn Gly Ile Thr Cys Ile Asp Val Asp | |
| 315 320 325 | |

| | |
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| gag tgc aaa tac cat ccc tgc tac ccg ggc gtg cac tgc ata aat ttg Glu Cys Lys Tyr His Pro Cys Tyr Pro Gly Val His Cys Ile Asn Leu 330 335 340 | 1059 |
| tct cct ggc ttc aga tgt gac gcc tgc cca gtg ggc ttc aca ggg ccc Ser Pro Gly Phe Arg Cys Asp Ala Cys Pro Val Gly Phe Thr Gly Pro 345 350 355 360 | 1107 |
| atg gtg cag ggt gtt ggg atc agt ttt gcc aag tca aac aag cag gtc Met Val Gln Gly Val Gly Ile Ser Phe Ala Lys Ser Asn Lys Gln Val 365 370 375 | 1155 |
| tgc act gac att gat gag tgt cga aat gga gcg tgc gtt ccc aac tcg Cys Thr Asp Ile Asp Glu Cys Arg Asn Gly Ala Cys Val Pro Asn Ser 380 385 390 | 1203 |
| atc tgc gtt aat act ttg gga tct tac cgc tgt ggg cct tgt aag ccg Ile Cys Val Asn Thr Leu Gly Ser Tyr Arg Cys Gly Pro Cys Lys Pro 395 400 405 | 1251 |
| ggg tat act ggt gat cag ata agg gga tgc aaa gtg gaa aga aac tgc Gly Tyr Thr Gly Asp Gln Ile Arg Gly Cys Lys Val Glu Arg Asn Cys 410 415 420 | 1299 |
| aga aac cca gag ctg aac cct tgc agt gtg aat gcc cag tgc att gaa Arg Asn Pro Glu Leu Asn Pro Cys Ser Val Asn Ala Gln Cys Ile Glu 425 430 435 440 | 1347 |
| gag agg cag ggg gat gtg aca tgt gtg tgt gga gtc ggt tgg gct gga Glu Arg Gln Gly Asp Val Thr Cys Val Cys Gly Val Gly Trp Ala Gly 445 450 455 | 1395 |
| gat ggc tat atc tgt gga aag gat gtg gac atc gac agt tac ccc gac Asp Gly Tyr Ile Cys Gly Lys Asp Val Asp Ile Asp Ser Tyr Pro Asp 460 465 470 | 1443 |
| gaa gaa ctg cca tgc tct gcc agg aac tgt aaa aag gac aac tgc aaa Glu Glu Leu Pro Cys Ser Ala Arg Asn Cys Lys Lys Asp Asn Cys Lys 475 480 485 | 1491 |
| tat gtg cca aat tct ggc caa gaa gat gca gac aga gat ggc att ggc Tyr Val Pro Asn Ser Gly Gln Glu Asp Ala Asp Arg Asp Gly Ile Gly 490 495 500 | 1539 |
| gac gct tgt gac gag gat gct gac gga gat ggg atc ctg aat gag cag Asp Ala Cys Asp Glu Asp Ala Asp Gly Asp Gly Ile Leu Asn Glu Gln 505 510 515 520 | 1587 |
| gat aac tgt gtc ctg att cat aat gtg gac caa agg aac agc gat aaa Asp Asn Cys Val Leu Ile His Asn Val Asp Gln Arg Asn Ser Asp Lys 525 530 535 | 1635 |
| gat atc ttt ggg gat gcc tgt gat aac tgc ctg agt gtc tta aat aac Asp Ile Phe Gly Asp Ala Cys Asp Asn Cys Leu Ser Val Leu Asn Asn 540 545 550 | 1683 |
| gac cag aaa gac acc gat ggg gat gga aga gga gat gcc tgt gat gat Asp Gln Lys Asp Thr Asp Gly Asp Gly Arg Gly Asp Ala Cys Asp Asp 555 560 565 | 1731 |
| gac atg gat gga gat gga ata aaa aac att ctg gac aac tgc cca aaa Asp Met Asp Gly Asp Gly Ile Lys Asn Ile Leu Asp Asn Cys Pro Lys 570 575 580 | 1779 |

| | |
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| ttt ccc aat cgt gac caa cgg gac aag gat ggt gat ggt gtg ggg gat | 1827 |
| Phe Pro Asn Arg Asp Gln Arg Asp Lys Asp Gly Asp Gly Val Gly Asp | |
| 585 590 595 600 | |
| gcc tgt gac agt tgt cct gat gtc agc aac cct aac cag tct gat gtg | 1875 |
| Ala Cys Asp Ser Cys Pro Asp Val Ser Asn Pro Asn Gln Ser Asp Val | |
| 605 610 615 | |
| gat aat gat ctg gtt ggg gac tcc tgt gac acc aat cag gac agt gat | 1923 |
| Asp Asn Asp Leu Val Gly Asp Ser Cys Asp Thr Asn Gln Asp Ser Asp | |
| 620 625 630 | |
| gga gat ggg cac cag gac agc aca gac aac tgc ccc acc gtc att aac | 1971 |
| Gly Asp Gly His Gln Asp Ser Thr Asp Asn Cys Pro Thr Val Ile Asn | |
| 635 640 645 | |
| agt gcc cag ctg gac acc gat aag gat gga att ggt gac gag tgt gat | 2019 |
| Ser Ala Gln Leu Asp Thr Asp Lys Asp Gly Ile Gly Asp Glu Cys Asp | |
| 650 655 660 | |
| gat gat gat gac aat gat ggt atc cca gac ctg gtg ccc cct gga cca | 2067 |
| Asp Asp Asp Asp Asn Asp Gly Ile Pro Asp Leu Val Pro Pro Gly Pro | |
| 665 670 675 680 | |
| gac aac tgc cgg ctg gtc ccc aac cca gcc cag gag gat agc aac agc | 2115 |
| Asp Asn Cys Arg Leu Val Pro Asn Pro Ala Gln Glu Asp Ser Asn Ser | |
| 685 690 695 | |
| gac gga gtg gga gac atc tgt gag tct gac ttt gac cag gac cag gtc | 2163 |
| Asp Gly Val Gly Asp Ile Cys Glu Ser Asp Phe Asp Gln Asp Gln Val | |
| 700 705 710 | |
| atc gat cgg atc gac gtc tgc cca gag aac gca gag gtc acc ctg acc | 2211 |
| Ile Asp Arg Ile Asp Val Cys Pro Glu Asn Ala Glu Val Thr Leu Thr | |
| 715 720 725 | |
| gac ttc agg gct tac cag acc gtg ggc ctg gat cct gaa ggg gat gcc | 2259 |
| Asp Phe Arg Ala Tyr Gln Thr Val Gly Leu Asp Pro Glu Gly Asp Ala | |
| 730 735 740 | |
| cag atc gat ccc aac tgg gtg gtc ctg aac cag ggc atg gag att gta | 2307 |
| Gln Ile Asp Pro Asn Trp Val Val Leu Asn Gln Gly Met Glu Ile Val | |
| 745 750 755 760 | |
| cag acc atg aac agt gat cct ggc ctg gca gtg ggg tac aca gct ttt | 2355 |
| Gln Thr Met Asn Ser Asp Pro Gly Leu Ala Val Gly Tyr Thr Ala Phe | |
| 765 770 775 | |
| taatggagtt gacttcgaag ggaccttcca tgtgaatacc cagacagatg atgactatgc | 2415 |
| aggctttatc tttggctacc aagatagctc cagcttctac gtggatcatgt ggaagcagac | 2475 |
| ggagcagaca tattggcaag ccacccatt ccgagcagtt gcagaacctg gcattcagct | 2535 |
| caaggctgtg aagtctaaga caggtccagg ggagcatctc cggaactccc tgtggcacac | 2595 |
| gggggacacc agtgaccagg tcaggctgct gtggaaggac tccaggaatg tgggctggaa | 2655 |
| ggacaagggtg tctaccgct ggttcctaca gcacaggccc caggtgggct acatcagggt | 2715 |
| acgattttat gaaggctctg agttgggtggc tgactctggc gtcaccatag acaccacaat | 2775 |
| gcgtggaggc cgacttgccg ttttctgctt ctctcaagaa aacatcatct ggtccaacct | 2835 |

2049

| | |
|---|------|
| ccc gat gta agc cat act tcc cgg ccc tct cct agc att gca gtc aag Pro Asp Val Ser His Thr Ser Arg Pro Ser Pro Ser Ile Ala Val Lys 170 175 180 | 701 |
| gcc aat acc aat aag cca cat gtc cca aaa cca ata gaa cca ctt cat Ala Asn Thr Asn Lys Pro His Val Pro Lys Pro Ile Glu Pro Leu His 185 190 195 | 749 |
| aat ttg tca tta act gaa aag agt tgg ccg aaa gat agt tct gtg gta Asn Leu Ser Leu Thr Glu Lys Ser Trp Pro Lys Asp Ser Ser Val Val 200 205 210 215 | 797 |
| tat gca aag tct ctt gag cat tct gga tct ttg gat gat cct aat aga Tyr Ala Lys Ser Leu Glu His Ser Gly Ser Leu Asp Asp Pro Asn Arg 220 225 230 | 845 |
| atc agt ttg gtg aaa aga aat gca gtg ttg cct tca aag cct ctg caa Ile Ser Leu Val Lys Arg Asn Ala Val Leu Pro Ser Lys Pro Leu Gln 235 240 245 | 893 |
| gac aga gaa gct atg gat gat aaa cca ggt gtg agt ggt cag ctt cca Asp Arg Glu Ala Met Asp Asp Lys Pro Gly Val Ser Gly Gln Leu Pro 250 255 260 | 941 |
| aaa gga aaa gct cta gag ctg gct ttg aag aga cca cgg cca cct gtt Lys Gly Lys Ala Leu Glu Leu Ala Leu Lys Arg Pro Arg Pro Pro Val 265 270 275 | 989 |
| ttg tct gtt tgt agc tca tca gag act ccc tat cta tta aaa gaa act Leu Ser Val Cys Ser Ser Ser Glu Thr Pro Tyr Leu Leu Lys Glu Thr 280 285 290 295 | 1037 |
| aac aaa gga aat ggt caa ggt gaa gat aga aac ttg ttg tac tat tca Asn Lys Gly Asn Gly Gln Gly Glu Asp Arg Asn Leu Leu Tyr Tyr Ser 300 305 310 | 1085 |
| aag tta ggc tta gtg atc cca tcc agt gga tct ggt tct gga aac caa Lys Leu Gly Leu Val Ile Pro Ser Ser Gly Ser Gly Ser Gly Asn Gln 315 320 325 | 1133 |
| agc att gac agg agt ggc cca ctt gtt aag agt ctc ctc aga cgg tca Ser Ile Asp Arg Ser Gly Pro Leu Val Lys Ser Leu Leu Arg Arg Ser 330 335 340 | 1181 |
| ttg tcg atg gat agc cag gtt cct gtc tat tca cct tcc ata gat ttg Leu Ser Met Asp Ser Gln Val Pro Val Tyr Ser Pro Ser Ile Asp Leu 345 350 355 | 1229 |
| aaa tct tcc cag ggg atc atc ttc ggt gtc cag tga tgcc caggggaatg Lys Ser Ser Gln Gly Ile Ile Phe Gly Val Gln * 360 365 370 | 1279 |
| tggtgtgtgc tttatctcag aagtcattctt taaaagattg tagtgaaaaa acagccctag | 1339 |
| atgacaggcc tcaagtgcta caaccgcata gcctcaggtc ctttagtgct tctcagtcaa | 1399 |
| cagacagggga gggagcttcc cctgtgactg aggtgcgcac aaagactgag cccagcagcc | 1459 |
| cgctgtcgga cccctcggac atcateccgcg tcaactgtggg agatgcggca acaacagcag | 1519 |
| ctgcctcacc ttcgtcgggc acaagagacc tgtctctgaa aacagaagat gacaaaaag | 1579 |
| acatgagcag actcccagca aaaaggaggt tccaagcgga ccgaagattg ccgtttaaga | 1639 |

agttaaaggt gaatgagcac ggggtctcctg tgtcagaaga taattttgag gaaggctcaa 1699
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cttgtgacat ctgtcacaag aggtttcaca ccaacttcaa agtgtggaca cactgtcaga 1939
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agagcaagga agccacgagc ggctgtgccg gaacgcggcc gtctgccctt actgcagcct 2419
caggtttttc tcgcccagc tgaagcaaga acacgagagc aagtgtgagt ataagaagct 2479
gacctgcctc gagtgcacgc gcaccttcaa gtctctttc agcatctggc ggcaccaggt 2539
tgaagtccat aatcagaaca acatggcacc caccgaaaac ttttctttgc ccgttttgga 2599
ccacaatggt gatgtgactg gttcttcaag gccccaatcc cagcctgagc ccaacaaagt 2659
aaaccacatc gtcaccacaa aagacgacaa cgtgttcagt gattcttcag aacaagttaa 2719
cttcgactcg gaagattcct cttgtcttcc cgaagacctt agtctttcca agcaactgaa 2779
aatccaagtc aaagaggagc ctgtggagga ggctgaagaa gaggcacccg aggccagcac 2839
agcccccaa gaagcgggtc ctagcaaaga agccagcctg tggccctgcg agaagtgtgg 2899
gaagatgttc acggtgcata agcagctgga gcgtcaccag gagcttctgt gctctgtgaa 2959
accatttatt tgtcacgtgt gcaacaaagc ttttcgcact aattttcgac tctggagtca 3019
cttccaatcg cacatgtctc aggtttcaga ggaatcggca cataaggaat ctgaggtgtg 3079
ccctgttccc acaaactctc cctctccacc acctctgcc cgcaccac cactgccccaa 3139
gatccagcct ctggagcctg acagccccac aggcctgtcc gaaaacccaa ctccagccac 3199
agaaaaactg tttgtgcccc aagaatcaga cacccttttt taccatgccc caccctttc 3259
agcaatcaca tttaaaagac agtttatgtg taaactttgc cacaggacat tcaagactgc 3319
atttagtctt tggagtcacg aacaaacaca caattgaaag accaacactt tttacctatg 3379
ggaggcagtc ccagatttc aacctgaatt gtgaaatgtg tcataagaaa caaaatattt 3439
tttaacaag aataataaag gttggagatt gttacgcttg aaaaaaaaaa aaaa 3493

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 <213> Homo sapiens

<220>
 <221> CDS
 <222> (251)..(799)

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 gaaggggtggc ccgccaggcg ggcgggggtcc atggattcgg ggtgagggcc gtccgcggcc 120
 tcgctttcgc ctccctccgag ccgggcccgc gatggccgca gctgtgaggc gagcagaaga 180
 atagaaggaa ggtgatagga tgtgatgata gaatttgtga tagccaagca acaacttttc 240
 ctaattcggc atg tta aaa aat aag ggt cac tca tct aag aaa gat aac 289
 Met Leu Lys Asn Lys Gly His Ser Ser Lys Lys Asp Asn
 1 5 10
 ttg gca gtc aat gca gtt gct tta caa gat cac att tta cat gat ctt 337
 Leu Ala Val Asn Ala Val Ala Leu Gln Asp His Ile Leu His Asp Leu
 15 20 25
 caa ctt cga aat ctt tca gtt gca gat cat tct aag aca caa gta caa 385
 Gln Leu Arg Asn Leu Ser Val Ala Asp His Ser Lys Thr Gln Val Gln
 30 35 40 45
 aag aaa gag aac aaa tct cta aaa aga gat aca aag gca ata ata gat 433
 Lys Lys Glu Asn Lys Ser Leu Lys Arg Asp Thr Lys Ala Ile Ile Asp
 50 55 60
 act gga ctt aaa aaa act aca cag tgc ccc aaa cta gaa gac tca gaa 481
 Thr Gly Leu Lys Lys Thr Thr Gln Cys Pro Lys Leu Glu Asp Ser Glu
 65 70 75
 aaa gaa tat gtt ctt gat ccc aaa ccg ccg ccg ttg act ttg gca cag 529
 Lys Glu Tyr Val Leu Asp Pro Lys Pro Pro Pro Leu Thr Leu Ala Gln
 80 85 90
 aag ttg ggc ctc att ggg cct cca cca cct cca ctg tca tca gat gaa 577
 Lys Leu Gly Leu Ile Gly Pro Pro Pro Pro Pro Leu Ser Ser Asp Glu
 95 100 105
 tgg gag aag gtg aaa cag cgc tct ctc ctg caa ggg gac tcc gtg caa 625
 Trp Glu Lys Val Lys Gln Arg Ser Leu Leu Gln Gly Asp Ser Val Gln
 110 115 120 125
 cca tgc ccc atc tgt aaa gaa gaa ttc gag ctt cgt cct cag gtg ttt 673
 Pro Cys Pro Ile Cys Lys Glu Glu Phe Glu Leu Arg Pro Gln Val Phe
 130 135 140
 agc ata cga ggg tgc tgc ttt cat gct ccc atg tgt tcc aca aag cat 721
 Ser Ile Arg Gly Cys Cys Phe His Ala Pro Met Cys Ser Thr Lys His
 145 150 155
 gtc ttc agg ctt ttg aaa agt tca caa ata aga aaa cct gtc ctc tct 769
 Val Phe Arg Leu Leu Lys Ser Ser Gln Ile Arg Lys Pro Val Leu Ser
 160 165 170

gta gaa aga acc agt atc aaa ccc gag tga t acacgatggg gccgcctgt 820
 Val Glu Arg Thr Ser Ile Lys Pro Glu *
 175 180

tcagaatcaa gtgtgtgacc agaatccaag cctactggag aggatgtggt gttagaaagt 880
 ggtacagaaa cctgaggaaa acagtacctc ccacagatgc caagttaaga aaaaaattct 940
 ttgaaaaaaaa gttcacagaa atcagccacc gcacccctgtg ctcatataac accaacattg 1000
 aagagctctt tgcagaaatc gatcagtgtc tggccataaa tcgaagtgtt cttcagcagt 1060
 tggaagaaaa atgtggccat gagatcacag aagaggaatg ggagaaaatc caagtgcagg 1120
 ctctgcgcgc ggagacccac gagggtcttca ttctgcctgg cccctctctc cgctgctggc 1180
 ggtcagcgcg tgggtgcagg caggcgcttc agagagatgg ccctcctgtc ctgctcacat 1240
 gtgttccacc atgcgtgtct gctggcacta gcaggagttc tccgtgggag acaggcctcc 1300
 tttccatgcc tgtcctctct gccgatcctg gttccagaat agcattcacg agtgcgtaag 1360
 tcatagtcaa gtagagcgag gtcagtctga ggtataaagt tcgccaatcg ttcggtagtg 1420
 agcggccgtg tggtaggtgt aataagccgg gaatccgggc cgggtactctc 1470

<210> 759
 <211> 914
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (12)..(899)

<400> 759
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 Met Ser Ser Asp Gly Glu Pro Leu Ser Arg Met Asp Ser
 1 5 10

gag gac agc ata agc agt act ata atg gat gta gac agc aca att tcc 98
 Glu Asp Ser Ile Ser Ser Thr Ile Met Asp Val Asp Ser Thr Ile Ser
 15 20 25

agt ggg cgt tca act cca gca atg atg aat gga caa gga agc act act 146
 Ser Gly Arg Ser Thr Pro Ala Met Met Asn Gly Gln Gly Ser Thr Thr
 30 35 40 45

tct tca agc aaa aat att gcc tat aat tgt tgt tgg gac cag tgc cag 194
 Ser Ser Ser Lys Asn Ile Ala Tyr Asn Cys Cys Trp Asp Gln Cys Gln
 50 55 60

gct tgc ttc aac tct agc cca gat ctg gca gat cac atc cgt tcc ata 242
 Ala Cys Phe Asn Ser Ser Pro Asp Leu Ala Asp His Ile Arg Ser Ile
 65 70 75

cat gta gat ggt cag cga gga ggg gta ttt gtt tgc tta tgg aaa ggt 290
 His Val Asp Gly Gln Arg Gly Gly Val Phe Val Cys Leu Trp Lys Gly
 80 85 90

tgt aaa gta tat aac act cca tct acc agt caa agt tgg tta caa agg 338

| Cys | Lys | Val | Tyr | Asn | Thr | Pro | Ser | Thr | Ser | Gln | Ser | Trp | Leu | Gln | Arg | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-------|-----|-----|-----|-----|
| 95 | | | | | | 100 | | | | | 105 | | | | | |
| cat | atg | ctg | aca | cac | agt | gga | gac | aaa | cct | ttc | aag | tgt | gtt | gtt | ggt | 386 |
| His | Met | Leu | Thr | His | Ser | Gly | Asp | Lys | Pro | Phe | Lys | Cys | Val | Val | Gly | |
| 110 | | | | | 115 | | | | | 120 | | | | | 125 | |
| ggc | tgc | aat | gcc | agc | ttt | gct | tct | cag | gga | ggg | cta | gct | cgt | cat | gta | 434 |
| Gly | Cys | Asn | Ala | Ser | Phe | Ala | Ser | Gln | Gly | Gly | Leu | Ala | Arg | His | Val | |
| | | | | 130 | | | | | 135 | | | | | 140 | | |
| ccc | aca | cac | ttc | agt | cag | cag | aac | tcc | tca | aaa | gtt | tct | agc | cag | cca | 482 |
| Pro | Thr | His | Phe | Ser | Gln | Gln | Asn | Ser | Ser | Lys | Val | Ser | Ser | Gln | Pro | |
| | | | 145 | | | | | 150 | | | | | 155 | | | |
| aag | gcc | aaa | gaa | gaa | tct | cct | tct | aaa | gct | gga | atg | aac | aaa | agg | agg | 530 |
| Lys | Ala | Lys | Glu | Glu | Ser | Pro | Ser | Lys | Ala | Gly | Met | Asn | Lys | Arg | Arg | |
| | 160 | | | | | | 165 | | | | | 170 | | | | |
| aaa | tta | aag | aac | aaa | aga | cga | cgc | tca | tta | cca | cgg | cca | cat | gat | ttc | 578 |
| Lys | Leu | Lys | Asn | Lys | Arg | Arg | Arg | Ser | Leu | Pro | Arg | Pro | His | Asp | Phe | |
| | 175 | | | | | 180 | | | | | 185 | | | | | |
| ttc | gat | gca | caa | aca | ctg | gat | gcg | ata | aga | cat | cga | gcc | ata | tgc | ttt | 626 |
| Phe | Asp | Ala | Gln | Thr | Leu | Asp | Ala | Ile | Arg | His | Arg | Ala | Ile | Cys | Phe | |
| 190 | | | | | 195 | | | | | 200 | | | | | 205 | |
| aac | ctc | tca | gct | cat | ata | gaa | agt | tta | ggg | aag | gga | cac | agt | gtt | gtt | 674 |
| Asn | Leu | Ser | Ala | His | Ile | Glu | Ser | Leu | Gly | Lys | Gly | His | Ser | Val | Val | |
| | | | | 210 | | | | | 215 | | | | | 220 | | |
| ttt | cat | agt | cct | gta | ata | gct | aag | aga | aaa | gaa | gat | tct | ggg | aag | atc | 722 |
| Phe | His | Ser | Pro | Val | Ile | Ala | Lys | Arg | Lys | Glu | Asp | Ser | Gly | Lys | Ile | |
| | | | 225 | | | | | 230 | | | | | 235 | | | |
| aaa | ctt | ttg | ctt | cat | tgg | atg | cct | gaa | gac | att | ctg | cat | gat | gtg | tgg | 770 |
| Lys | Leu | Leu | Leu | His | Trp | Met | Pro | Glu | Asp | Ile | Leu | His | Asp | Val | Trp | |
| | 240 | | | | | | 245 | | | | | 250 | | | | |
| gtg | aat | gaa | agt | gaa | cga | cat | cag | tta | aaa | act | aaa | gta | gtt | cat | tta | 818 |
| Val | Asn | Glu | Ser | Glu | Arg | His | Gln | Leu | Lys | Thr | Lys | Val | Val | His | Leu | |
| | 255 | | | | | 260 | | | | | 265 | | | | | |
| tca | aag | cta | ccc | aaa | gat | act | gcc | ttg | ctt | ttg | gac | cca | aac | ata | tac | 866 |
| Ser | Lys | Leu | Pro | Lys | Asp | Thr | Ala | Leu | Leu | Leu | Asp | Pro | Asn | Ile | Tyr | |
| 270 | | | | 275 | | | | | | 280 | | | | | 285 | |
| aga | aca | atg | ccg | cag | aag | agg | ttg | aag | agg | taa | aaaaaaaaa | aaaaa | | | | 914 |
| Arg | Thr | Met | Pro | Gln | Lys | Arg | Leu | Lys | Arg | * | | | | | | |
| | | | | 290 | | | | | 295 | | | | | | | |

<210> 760
 <211> 913
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (18) .. (662)

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 Met Asp Asn Ala Gly Lys Glu Arg Glu Ala Val
 1 5 10

cag ctg atg gcg gag gcc gag aag cga gtc aag gcc tcc cac tcc ttc 98
 Gln Leu Met Ala Glu Ala Glu Lys Arg Val Lys Ala Ser His Ser Phe
 15 20 25

ctc cga ggg ctg ttt gga gga aac aca aga ata gaa gag gct tgt gaa 146
 Leu Arg Gly Leu Phe Gly Gly Asn Thr Arg Ile Glu Glu Ala Cys Glu
 30 35 40

atg tat acc aga gct gca aat atg ttc aag atg gct aaa aat tgg agt 194
 Met Tyr Thr Arg Ala Ala Asn Met Phe Lys Met Ala Lys Asn Trp Ser
 45 50 55

gct gca gga aac gca ttt tgt cag gca gcc aag ctc cac atg cag ctt 242
 Ala Ala Gly Asn Ala Phe Cys Gln Ala Ala Lys Leu His Met Gln Leu
 60 65 70 75

cag agc aaa cat gac tct gct acc agc ttt gtg gat gct gga aat gct 290
 Gln Ser Lys His Asp Ser Ala Thr Ser Phe Val Asp Ala Gly Asn Ala
 80 85 90

tac aaa aag gca gat ccc caa gag gct atc aac tgc tta aat gca gcc 338
 Tyr Lys Lys Ala Asp Pro Gln Glu Ala Ile Asn Cys Leu Asn Ala Ala
 95 100 105

atc gac att tac aca gac atg gga agg ttt aca att gca gcc aag cac 386
 Ile Asp Ile Tyr Thr Asp Met Gly Arg Phe Thr Ile Ala Ala Lys His
 110 115 120

cac att act att gca gag atc tat gag act gaa ctt gta gac att gag 434
 His Ile Thr Ile Ala Glu Ile Tyr Glu Thr Glu Leu Val Asp Ile Glu
 125 130 135

aag gct att gca cat tat gaa caa tct gct gat tat tac aaa gga gaa 482
 Lys Ala Ile Ala His Tyr Glu Gln Ser Ala Asp Tyr Tyr Lys Gly Glu
 140 145 150 155

gaa tcc aac agc tca gca aac aag tgt ctg ctg aag gtg gca gca tat 530
 Glu Ser Asn Ser Ser Ala Asn Lys Cys Leu Leu Lys Val Ala Ala Tyr
 160 165 170

gct gcc cag ctt gag cag tac cag aaa gcc att gag atc tat gag cag 578
 Ala Ala Gln Leu Glu Gln Tyr Gln Lys Ala Ile Glu Ile Tyr Glu Gln
 175 180 185

gtt ggg gcc aac aca atg gaa tat ccc ttt gtg gaa tac agg cca aag 626
 Val Gly Ala Asn Thr Met Glu Tyr Pro Phe Val Glu Tyr Arg Pro Lys
 190 195 200

gat act tct tca aag ctg cct ttt gcc act cta tag agac gagttgaagg 676
 Asp Thr Ser Ser Lys Leu Pro Phe Ala Thr Leu *
 205 210 215

ccagcttgct cttgagaata tgaggaatgt tccagcatta ctgattcaga gatgtaaatt 736

attgaaaaac tctagagctc atgacgacag acaggggaact tacctgagca gtgaggattg 796

gctcatatct gcttgacaga gttgacacat gtggtcgatc aaagccttcc agggatgaga 856

cgaatgggac taatgaaggt ttgtttggca gcatacacct tattttgtag caaggac 913

<210> 761
 <211> 2047
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (369) .. (860)

<400> 761
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 ccgcctctct ctaccgcgc cgtccccgcc tctcgtcct gcgctgcggg ctccaggcgga 180
 acccggaacg gccgtcctct tccccgcc tccgcgcct cctccttctc ctctcctcc 240
 tctcctcct ccttctcggc ttctcctca gccccgggcc ggagcgggggt gtcggcggcg 300
 gccgggttcgg gcggcgactc gcgcttcttt gggcggcggc gcttggccat gtcgtgtcgg 360
 ggaaggta atg agc cgc aga gcc ccg ggg tct cgg ctg agc agc ggc ggc 410
 Met Ser Arg Arg Ala Pro Gly Ser Arg Leu Ser Ser Gly Gly
 1 5 10
 ggc ggc ggc ggc acc aag tat ccg cgg agc tgg aat gac tgg caa ccc 458
 Gly Gly Gly Gly Thr Lys Tyr Pro Arg Ser Trp Asn Asp Trp Gln Pro
 15 20 25 30
 aga act gat agt gca tca gcc gac cca gat aat tta aaa tat tct tca 506
 Arg Thr Asp Ser Ala Ser Ala Asp Pro Asp Asn Leu Lys Tyr Ser Ser
 35 40 45
 tcc aga gat aga ggt ggt tct tcc tct tat gga ctg caa cct tca aat 554
 Ser Arg Asp Arg Gly Gly Ser Ser Ser Tyr Gly Leu Gln Pro Ser Asn
 50 55 60
 tca gct gtg gtg tct cgg caa agg cac gat gat acc aga gtc cac gct 602
 Ser Ala Val Val Ser Arg Gln Arg His Asp Asp Thr Arg Val His Ala
 65 70 75
 gac ata cag aat gac gaa aag ggt ggc tac agt gtc aat gga gga tct 650
 Asp Ile Gln Asn Asp Glu Lys Gly Gly Tyr Ser Val Asn Gly Gly Ser
 80 85 90
 ggg gaa aat act tat ggt cgg aag tcg ttg ggg caa gag ctg agg gtt 698
 Gly Glu Asn Thr Tyr Gly Arg Lys Ser Leu Gly Gln Glu Leu Arg Val
 95 100 105 110
 aac aat gtg acc agc cct gag ttc aca agt gtt cag cat ggc agt cgt 746
 Asn Asn Val Thr Ser Pro Glu Phe Thr Ser Val Gln His Gly Ser Arg
 115 120 125
 gct tta gcc acc aaa gac atg agg aaa tca cag gag aga tcg atg tct 794
 Ala Leu Ala Thr Lys Asp Met Arg Lys Ser Gln Glu Arg Ser Met Ser
 130 135 140
 tat tgt gat gag tct cga ctg tca aat ctt ctt cgg agg atc acc cgg 842
 Tyr Cys Asp Glu Ser Arg Leu Ser Asn Leu Leu Arg Arg Ile Thr Arg

145

150

155

gaa gac gac aga gac tga agattg gtcactgtaa agcagttgaa agaatttatt 896
Glu Asp Asp Arg Asp *
160

cagcaaccag aaaataagct ggtactagtt aaacaattgg ataatatctt ggctgctgta 956
catgatgtgc ttaatgaaag tagcaaattg cttcaggagt tgagacagga gggagcttgc 1016
tgtctcggcc ttctttgtgc ttctctgagc tatgaggctg agaagatctt caagtggatt 1076
tttagcaaat ttagctcatc tgcaaaagat gaagttaaac tcctctactt atgtgccacc 1136
taciaaagcac tagagactgt aggagaaaag aaagcctttt catctgtaat gcagcttgta 1196
atgaccagcc tgcagtcaat tcttgaaaat gtggatacac cagaattgct ttgcaaattg 1256
gttaagtgca ttcttttggt ggctcgatgt taccctcata ttttcagcac taattttagg 1316
gatacagttg atatattagt tggatggcat agagatcata ctcagaaacc ttcgctcacg 1376
cagcaggtat ctgggtgggt gcagagtttg gagccatttt gggtagctga tcttgcatth 1436
cctacgactc ttcttggtca gtttctagaa gacatggaag catatgctga ggacctcagc 1496
catgtggcct ctggggaatc agtggatgaa gacgtccctc ctccatcagt gtcacacca 1556
aagctggctg cgcttctccg ggtatttagt actgtgctga ggagcattgg ggaacgcttc 1616
agcccaatc gggctcctca attactgagg catacgtaac agttgttctg tacagagtaa 1676
tgagatgtgt gacggctgca aaccaggtgt ttttttctga ggctgtgttg acagctgcta 1736
atgagtgtgt tgggtgtttg ctccgcagct tggatcctag catgactata cattgtgaca 1796
tggtcattac atatggagta gaccaactgg agaattgcca gacttgtggt accaattata 1856
tcattctcagt cttgaattta ctcacgctga ttgttgacca gataaatagc aaactgccat 1916
catcatttgt agaaaactgt ttataccatc atctaaacta ctattctggc gttatcataa 1976
gacaaggggt ttgctgtag cccatctgtt tatcaagcaa tctcagcttg agatattcct 2036
gtttggagac t 2047

<210> 762
<211> 567
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (295) .. (465)

<400> 762
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catctcctgc tggttaccac cttactcatt tctctccaac gatactggcc ttcttggtat 120
tccttgaaca taccaagtat attctcttgc ctcagggact ttgcttctgc ccttctccat 180

| | |
|--|-----|
| tcttgggata ctcttctccc agttattctg catgcctttc tcccacacct cttttaaata | 240 |
| tttgctttga agtcaccttc ttatcttttg ccttgttgca ctccctgaagg caaa atg | 297 |
| | Met |
| | 1 |
| gat cac aag cag ctc tgc tgg agc cac cca caa aaa tct ggc cag agt | 345 |
| Asp His Lys Gln Leu Cys Trp Ser His Pro Gln Lys Ser Gly Gln Ser | |
| 5 10 15 | |
| tct cgc tct tgt tgc atc tgc tca aac cag cat ggt ctg atc tgg aaa | 393 |
| Ser Arg Ser Cys Cys Ile Cys Ser Asn Gln His Gly Leu Ile Trp Lys | |
| 20 25 30 | |
| tat agc ctc aat atg tgc ctc cag tgt tgc cat cag tac gtg aag gat | 441 |
| Tyr Ser Leu Asn Met Cys Leu Gln Cys Cys His Gln Tyr Val Lys Asp | |
| 35 40 45 | |
| ata ggt ttc att aaa ttg gac taa gtgatcttcc ttgaatggat tatccaaggc | 495 |
| Ile Gly Phe Ile Lys Leu Asp * | |
| 50 55 | |
| atccacacaa tgaaaaatca tattagctgt ttgtacataa aataaaaaatg aagaaaatga | 555 |
| agtcaaacga ca | 567 |

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<210> 763
<211> 888
<212> DNA
<213> Homo sapiens
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<220>
<221> CDS
<222> (589) .. (858)
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[illegible]

| 5 | 10 | 15 | |
|---|----|----|-----|
| ggg tcc cag cct gac gca gcc cga gag ctc cgc tct tgc ctt ctc cac | | | 693 |
| Gly Ser Gln Pro Asp Ala Ala Arg Glu Leu Arg Ser Cys Leu Leu His | | | |
| 20 | 25 | 30 | 35 |
| ctc aca ctg cag ggt cag cga gga gga atc tgt gca cca cct ctg tca | | | 741 |
| Leu Thr Leu Gln Gly Gln Arg Gly Gly Ile Cys Ala Pro Pro Leu Ser | | | |
| | 40 | 45 | 50 |
| cct ggg gcc ctc cag cca ctt ccc cat gct gag ctg gca ccc tca ggc | | | 789 |
| Pro Gly Ala Leu Gln Pro Leu Pro His Ala Glu Leu Ala Pro Ser Gly | | | |
| | 55 | 60 | 65 |
| cta cct tcc ctc agg tgc cct cga agc act gct ttg agg tcc cct ggc | | | 837 |
| Leu Pro Ser Leu Arg Cys Pro Arg Ser Thr Ala Leu Arg Ser Pro Gly | | | |
| | 70 | 75 | 80 |
| ctg tct cca ctc ttg cat taa ccataatgtc accgaagcca cccctgtatt | | | 888 |
| Leu Ser Pro Leu Leu His * | | | |
| 85 | 90 | | |

<210> 764
 <211> 984
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (153)..(806)

| | | | |
|--|-----------------------------|----|-----|
| <400> 764 | | | |
| tatacagaggc actataggga atttcgcccc gagcagtaat tcggcacgac ggggaaccgc | | | 60 |
| atcctccgca tccacatccg catcgtcgtc ctccccgacc gcgtcctgca gcagctgcca | | | 120 |
| gtggagccgc ctgacaagga ctgccatcca cc atg gtg aag ctg ggc tgc agc | | | 173 |
| | Met Val Lys Leu Gly Cys Ser | | |
| | 1 | 5 | |
| ttc tct ggg aag cca ggt aaa gac cct ggg gac cag gat ggg gct gcc | | | 221 |
| Phe Ser Gly Lys Pro Gly Lys Asp Pro Gly Asp Gln Asp Gly Ala Ala | | | |
| | 10 | 15 | 20 |
| atg gac agt gtg cct ctg atc agc ccc ttg gac atc agc cag ctc cag | | | 269 |
| Met Asp Ser Val Pro Leu Ile Ser Pro Leu Asp Ile Ser Gln Leu Gln | | | |
| | 25 | 30 | 35 |
| ccg cca ctc cct gac cag gtg gtc atc aag aca cag aca gaa tac cag | | | 317 |
| Pro Pro Leu Pro Asp Gln Val Val Ile Lys Thr Gln Thr Glu Tyr Gln | | | |
| | 40 | 45 | 50 |
| ctg tcc tcc cca gac cag cag aat ttc cct gac ctg gag ggc cag agg | | | 365 |
| Leu Ser Ser Pro Asp Gln Gln Asn Phe Pro Asp Leu Glu Gly Gln Arg | | | |
| | 60 | 65 | 70 |
| ctg aac tgc agc cac cca gag gaa ggg cgc agg ctg ccc acc gca cgg | | | 413 |
| Leu Asn Cys Ser His Pro Glu Glu Gly Arg Arg Leu Pro Thr Ala Arg | | | |
| | 75 | 80 | 85 |

```

atg atc gcc ttc gcc atg gcg cta ctg ggc tgc gtg ctg atc atg tac      461
Met Ile Ala Phe Ala Met Ala Leu Leu Gly Cys Val Leu Ile Met Tyr
          90                      95                      100

aag gcc atc tgg tac gac cag ttc acc tgc ccc gac ggc ttc ctg ctg      509
Lys Ala Ile Trp Tyr Asp Gln Phe Thr Cys Pro Asp Gly Phe Leu Leu
          105                      110                      115

cgg cac aag atc tgc acg ccg ctg acc ctg gag atg tac tac acg gag      557
Arg His Lys Ile Cys Thr Pro Leu Thr Leu Glu Met Tyr Tyr Thr Glu
          120                      125                      130                      135

atg gac ccc gag cgc cac cgc agc atc ctg gcg gcc atc ggg gcc tac      605
Met Asp Pro Glu Arg His Arg Ser Ile Leu Ala Ala Ile Gly Ala Tyr
          140                      145                      150

ccg ctg agc cgc aag cac ggc acg gag acg ccg gcg gcc tgg ggg gac      653
Pro Leu Ser Arg Lys His Gly Thr Glu Thr Pro Ala Ala Trp Gly Asp
          155                      160                      165

ggc tac cgc gca gcc aag gag gag cgc aag ggg ccc acc cag gct ggg      701
Gly Tyr Arg Ala Ala Lys Glu Glu Arg Lys Gly Pro Thr Gln Ala Gly
          170                      175                      180

gcg gcg gcg gcg gcc acc gaa ccc ccc ggg aag ccg tcg gcc aag gcg      749
Ala Ala Ala Ala Thr Glu Pro Pro Gly Lys Pro Ser Ala Lys Ala
          185                      190                      195

gag aag gag gcg gcg ccg aag gcg gcc ggg agc gcg gcg ccc ccg ccc      797
Glu Lys Glu Ala Ala Arg Lys Ala Ala Gly Ser Ala Ala Pro Pro Pro
          200                      205                      210                      215

gcg cag tga cgtctcc agcccgag cccggcccg gcgtcctccg ccagctcctg      853
Ala Gln *

tgaccagcgc gtctcccgat gctctccgcc gtgttcgtgt cccaggcgc cctcgctgca      913

gccccgcccc cgtgggtctc tgactctgtc gcttttctct aagtaaagat ttcacgtcca      973

aaaaaaaaa a                                                                984

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<210> 765
 <211> 1538
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (237) .. (1451)

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<400> 765
catggaaccc ccctagatac gtcattgcgga accgccccgg aattccccggg tcgacccacg      60
cgtccgggag acgtgtctgt ctgtgaggcg ctgggtgcac gtccccaggg ctctgggcta      120
ggaaggcagc ggcgaggtgc ctccccacgt acccctcgcg ggcccagccg agcaacgtgg      180
ggcgaaggcg gcggcgaagg cccgggctgg gagcgttggc ggccggagtc ccagcc      236
atg gcg gag tct gtg gag cgc ctg cag cag cgg gtc cag gag ctg gag      284
Met Ala Glu Ser Val Glu Arg Leu Gln Gln Arg Val Gln Glu Leu Glu

```

| 1 | 5 | 10 | 15 | |
|---|-----|-----|-----|------|
| cgg gaa ctt gcc cag gag agg agt ctg cag gtc ccg agg agc ggc gac | | | | 332 |
| Arg Glu Leu Ala Gln Glu Arg Ser Leu Gln Val Pro Arg Ser Gly Asp | 20 | 25 | 30 | |
| gga ggg ggc ggc cgg gtc cgc atc gag aag atg agc tca gag gtg gtg | | | | 380 |
| Gly Gly Gly Gly Arg Val Arg Ile Glu Lys Met Ser Ser Glu Val Val | 35 | 40 | 45 | |
| gat tcg aat ccc tac agc cgc ttg atg gca ttg aaa cga atg gga att | | | | 428 |
| Asp Ser Asn Pro Tyr Ser Arg Leu Met Ala Leu Lys Arg Met Gly Ile | 50 | 55 | 60 | |
| gta agc gac tat gag aaa atc cgt acc ttt gcc gta gca ata gta ggt | | | | 476 |
| Val Ser Asp Tyr Glu Lys Ile Arg Thr Phe Ala Val Ala Ile Val Gly | 65 | 70 | 75 | 80 |
| gtt ggt gga gta ggt agt gtg act gct gaa atg ctg aca aga tgt ggc | | | | 524 |
| Val Gly Gly Val Gly Ser Val Thr Ala Glu Met Leu Thr Arg Cys Gly | 85 | 90 | 95 | |
| att ggt aag ttg cta ctc ttt gat tat gac aag gtg gaa cta gcc aat | | | | 572 |
| Ile Gly Lys Leu Leu Leu Phe Asp Tyr Asp Lys Val Glu Leu Ala Asn | 100 | 105 | 110 | |
| atg aat aga ctt ttc ttc caa cct cat caa gca gga tta agt aaa gtt | | | | 620 |
| Met Asn Arg Leu Phe Phe Gln Pro His Gln Ala Gly Leu Ser Lys Val | 115 | 120 | 125 | |
| caa gca gca gaa cat act ctg agg aac att aat cct gat gtt ctt ttt | | | | 668 |
| Gln Ala Ala Glu His Thr Leu Arg Asn Ile Asn Pro Asp Val Leu Phe | 130 | 135 | 140 | |
| gaa gta cac aac tat aat ata acc aca gtg gaa aac ttt caa cat ttc | | | | 716 |
| Glu Val His Asn Tyr Asn Ile Thr Thr Val Glu Asn Phe Gln His Phe | 145 | 150 | 155 | 160 |
| atg gat aga ata agt aat ggt ggg tta gaa gaa gga aaa cct gtt gat | | | | 764 |
| Met Asp Arg Ile Ser Asn Gly Gly Leu Glu Glu Gly Lys Pro Val Asp | 165 | 170 | 175 | |
| cta gtt ctt agc tgt gtg gac aat ttt gaa gct cga atg aca ata aat | | | | 812 |
| Leu Val Leu Ser Cys Val Asp Asn Phe Glu Ala Arg Met Thr Ile Asn | 180 | 185 | 190 | |
| aca gct tgt aat gaa ctt gga caa aca tgg atg gaa tct ggg gtc agt | | | | 860 |
| Thr Ala Cys Asn Glu Leu Gly Gln Thr Trp Met Glu Ser Gly Val Ser | 195 | 200 | 205 | |
| gaa aat gca gtt tca ggg cat ata cag ctt ata att cct gga gaa tct | | | | 908 |
| Glu Asn Ala Val Ser Gly His Ile Gln Leu Ile Ile Pro Gly Glu Ser | 210 | 215 | 220 | |
| gct tgt ttt gcg tgt gct cca cca ctt gta gtt gct gca aat att gat | | | | 956 |
| Ala Cys Phe Ala Cys Ala Pro Pro Leu Val Val Ala Ala Asn Ile Asp | 225 | 230 | 235 | 240 |
| gaa aag act ctg aaa cga gaa ggt gtt tgt gca gcc agt ctt cct acc | | | | 1004 |
| Glu Lys Thr Leu Lys Arg Glu Gly Val Cys Ala Ala Ser Leu Pro Thr | 245 | 250 | 255 | |
| act atg ggt gtg gtt gct ggg atc tta gta caa aac gtg tta aag ttt | | | | 1052 |
| Thr Met Gly Val Val Ala Gly Ile Leu Val Gln Asn Val Leu Lys Phe | | | | |

| 260 | 265 | 270 | |
|---|-----|-----|------|
| ctg tta aat ttt ggt act gtt agt ttt tac ctt gga tac aat gca atg | | | 1100 |
| Leu Leu Asn Phe Gly Thr Val Ser Phe Tyr Leu Gly Tyr Asn Ala Met | | | |
| 275 | 280 | 285 | |
| cag gat ttt ttt cct act atg tcc atg aag cca aat cct cag tgt gat | | | 1148 |
| Gln Asp Phe Phe Pro Thr Met Ser Met Lys Pro Asn Pro Gln Cys Asp | | | |
| 290 | 295 | 300 | |
| gac aga aat tgc agg aag cag cag gag gaa tat aag aaa aag gta gca | | | 1196 |
| Asp Arg Asn Cys Arg Lys Gln Gln Glu Glu Tyr Lys Lys Lys Val Ala | | | |
| 305 | 310 | 315 | 320 |
| gca ctg cct aaa caa gag gtt ata caa gaa gag gaa gag ata atc cat | | | 1244 |
| Ala Leu Pro Lys Gln Glu Val Ile Gln Glu Glu Glu Glu Ile Ile His | | | |
| 325 | 330 | 335 | |
| gaa gat aat gaa tgg ggt att gag ctg gta tct gag gtt tca gaa gag | | | 1292 |
| Glu Asp Asn Glu Trp Gly Ile Glu Leu Val Ser Glu Val Ser Glu Glu | | | |
| 340 | 345 | 350 | |
| gaa ctg aaa aat ttt tca ggt cca gtt cca gac tta cct gaa gga att | | | 1340 |
| Glu Leu Lys Asn Phe Ser Gly Pro Val Pro Asp Leu Pro Glu Gly Ile | | | |
| 355 | 360 | 365 | |
| aca gtg gca tac aca att cca aaa aag caa gaa gat tct gtc act gag | | | 1388 |
| Thr Val Ala Tyr Thr Ile Pro Lys Lys Gln Glu Asp Ser Val Thr Glu | | | |
| 370 | 375 | 380 | |
| tta aca gtg gaa gat tct ggt gaa agc ttg gaa gac ctc atg gcc aaa | | | 1436 |
| Leu Thr Val Glu Asp Ser Gly Glu Ser Leu Glu Asp Leu Met Ala Lys | | | |
| 385 | 390 | 395 | 400 |
| atg aag aat atg tag ataatggact gggatatatt gtatttctca tgttaaagcc | | | 1491 |
| Met Lys Asn Met * | | | |
| 405 | | | |
| tcttccttg aaattaaaaa aaaatttttaa ctgataaaaa aaaaaaa | | | 1538 |

<210> 766
 <211> 1884
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (51) ..(647)

| | | |
|---|---------|-----|
| gccgcggagc cggcgggagg gcgggcgggc gggcggacgg gcagcctaac | atg gca | 56 |
| | Met Ala | |
| | 1 | |
| gac cag aga cag cgc tca ctg tct acc tct ggg gag tca ttg tac cac | | 104 |
| Asp Gln Arg Gln Arg Ser Leu Ser Thr Ser Gly Glu Ser Leu Tyr His | | |
| 5 | 10 | 15 |
| gtc ctt ggg ttg gac aag aac gca acc tca gat gac att aaa aag tcc | | 152 |
| Val Leu Gly Leu Asp Lys Asn Ala Thr Ser Asp Asp Ile Lys Lys Ser | | |
| 20 | 25 | 30 |

| | |
|---|------|
| tat cgg aag ctt gcc ttg aaa tat cac ccc gac aag aac ccc gac aac | 200 |
| Tyr Arg Lys Leu Ala Leu Lys Tyr His Pro Asp Lys Asn Pro Asp Asn | |
| 35 40 45 50 | |
| ccg gag gcc gcg gac aag ttt aag gag atc aac aac gcg cac gcc atc | 248 |
| Pro Glu Ala Ala Asp Lys Phe Lys Glu Ile Asn Asn Ala His Ala Ile | |
| 55 60 65 | |
| ctc acg gac gcc aca aaa agg aac atc tac gac aag tac ggc tcg ctg | 296 |
| Leu Thr Asp Ala Thr Lys Arg Asn Ile Tyr Asp Lys Tyr Gly Ser Leu | |
| 70 75 80 | |
| ggc ctc tac gtg gcc gag cag ttt ggg gaa gag aac gtg aac acc tac | 344 |
| Gly Leu Tyr Val Ala Glu Gln Phe Gly Glu Glu Asn Val Asn Thr Tyr | |
| 85 90 95 | |
| ttc gtg ctg tcc agc tgg tgg gcc aag gcc ctg ttt gtc ttc tgc ggc | 392 |
| Phe Val Leu Ser Ser Trp Trp Ala Lys Ala Leu Phe Val Phe Cys Gly | |
| 100 105 110 | |
| ctc ctc acg tgc tgc tac tgc tgc tgc tgc tgc ctg tgc tgc tgc ttc aac | 440 |
| Leu Leu Thr Cys Cys Tyr Cys Cys Cys Cys Cys Leu Cys Cys Cys Phe Asn | |
| 115 120 125 130 | |
| tgc tgc tgc ggg aag tgt aag ccc aag gcg cct gaa ggc gag gag acg | 488 |
| Cys Cys Cys Gly Lys Cys Lys Pro Lys Ala Pro Glu Gly Glu Glu Thr | |
| 135 140 145 | |
| gag ttc tac gtg tcc ccc gag gat ctg gag gca cag ctg cag tct gac | 536 |
| Glu Phe Tyr Val Ser Pro Glu Asp Leu Glu Ala Gln Leu Gln Ser Asp | |
| 150 155 160 | |
| gag agg gag gcc aca gac acg ccg atc gtc ata cag ccg gca tcc gcc | 584 |
| Glu Arg Glu Ala Thr Asp Thr Pro Ile Val Ile Gln Pro Ala Ser Ala | |
| 165 170 175 | |
| acc gag acc acc cag ctc aca gcc gac tcc cac ccc agc tac cac act | 632 |
| Thr Glu Thr Thr Gln Leu Thr Ala Asp Ser His Pro Ser Tyr His Thr | |
| 180 185 190 | |
| gac ggg ttc aac taa atccaggagg agctgtgggc agaggaggag ccggcgccctg | 687 |
| Asp Gly Phe Asn * | |
| 195 | |
| gccacgcca ccttagaatc atgaactgta gtcacagaga tgggaaggca gcctcctgcc | 747 |
| tgccctggcc ttgctggggc ccctcctgcc tccacgcca ccagcgctcg acccttgacc | 807 |
| cacgaagtgc gtagcatgca gtatttaaag cagtgtagct acggtcttct gtttttttcc | 867 |
| cttttttaat agcatgtatg gggttctgtt ccatgtctgt gttgtggaca ttccgcggca | 927 |
| tgaccgcgtg aactgcacgg tggagctgcc tcagggtctg cggtcagggtt ggtccagtga | 987 |
| ggggtgactg cagccgggtca ggtgggagag gagaaggggg gctgcccctt tcctacctgt | 1047 |
| gcttgagggg ccggaggcag gtgctgcctg gcagagctgt gttaccgtct tggcctcggg | 1107 |
| gtctgggtcca cactctgtgc tcccagcctt gaggtgcag taggactctg atctcacctg | 1167 |
| ccagaagaga ggcggggccg cgtcctcctg gcgtcacagg cgtcactgtc attccttggt | 1227 |
| gtctgtgctg ggcattggtg gcttgggggt ctgtgggttc ctgggccttg tggcagggtt | 1287 |

tctcccgtgg gagaatttgg tgtggaaagc ataggaggcc ccttccgagg ttgacaccgt 1347
 gtcctccgcg gtgtttctcg cctggtcgtc tcgtcgtgtg gacgctgccg ttctggttct 1407
 cggagggtgtg tccttcgccc tgttgggggtt atttgtctgt gttcctgcac ttttcccggg 1467
 ctctgagctg gattgatggg gccagtctcc cccctcccat cttgaggctg ttctccacat 1527
 tccttccagc acacgtgtcc tttccatagc cctttttgga cctttagaac cacagatgat 1587
 aggaccagcc caatgagcca cagtcagaga gtagattgtg catgtgtgag cacccagcta 1647
 ctgggggacgg gggctctccc acgacccctc ctccctgtgtt tgccagagct cccatctgcc 1707
 ccactgcct ttgccccgtc atcgatgatt caggcagagc cagattcgtt aggtccctgg 1767
 aggaaggact gactggacca gagggaccct ctggctcagg agggttgggt ccctgggagg 1827
 ccggcagcca ggccacagaa tccacacgtg gaccattgtg ggtccctggg aggccgg 1884

<210> 767
 <211> 3641
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (121) .. (2979)

<400> 767
 gacggcaatg caagcgaaaa ttaccctcac taaagcggaa taagcttgcg gccgctgcgg 60
 ggcgcgagct gcccttcaca aacatggcgg ccgaggggtg cggggagtg cggggtaagg 120
 atg gga agc cga gca gac ggc ccc aga aca agc ggt cat gtg act ggg 168
 Met Gly Ser Arg Ala Asp Gly Pro Arg Thr Ser Gly His Val Thr Gly
 1 5 10 15
 aag atg gcc gtc ttt cct tgg cac tcc agg aat agg aac tac aaa gct 216
 Lys Met Ala Val Phe Pro Trp His Ser Arg Asn Arg Asn Tyr Lys Ala
 20 25 30
 gaa ttt gca tca tgc cga ctg gag gct gta cca ttg gag ttt ggg gac 264
 Glu Phe Ala Ser Cys Arg Leu Glu Ala Val Pro Leu Glu Phe Gly Asp
 35 40 45
 tat cac cct ctg aaa ccc ata act gtc aca gag tca aag aca aag aaa 312
 Tyr His Pro Leu Lys Pro Ile Thr Val Thr Glu Ser Lys Thr Lys Lys
 50 55 60
 gtg aac cgg aaa gga agc act tct tcc acg tcc tcc tcc tcc tcc agc 360
 Val Asn Arg Lys Gly Ser Thr Ser Ser Thr Ser Ser Ser Ser Ser Ser
 65 70 75 80
 tcc gtg gtg gac ccg ctg agc agc gtc ctc gat ggg act gac ccc ctc 408
 Ser Val Val Asp Pro Leu Ser Ser Val Leu Asp Gly Thr Asp Pro Leu
 85 90 95
 tcc atg ttt gca gcc act gct gac ccc gca gcc ttg gca gct gcc atg 456
 Ser Met Phe Ala Ala Thr Ala Asp Pro Ala Ala Leu Ala Ala Ala Met

| 100 | 105 | 110 | |
|---|-----|-----|------|
| gac agc tcc aga agg aaa cgt gat aga gat gat aac tcc gtt gta gga | | | 504 |
| Asp Ser Ser Arg Arg Lys Arg Asp Arg Asp Asp Asn Ser Val Val Gly | | | |
| 115 | 120 | 125 | |
| tcg gat ttt gag cct tgg acc aac aaa cgg gga gaa atc ctt gcc cgg | | | 552 |
| Ser Asp Phe Glu Pro Trp Thr Asn Lys Arg Gly Glu Ile Leu Ala Arg | | | |
| 130 | 135 | 140 | |
| tac acc act acc gaa aag ctg tct att aat ctg ttt atg gga tct gaa | | | 600 |
| Tyr Thr Thr Thr Glu Lys Leu Ser Ile Asn Leu Phe Met Gly Ser Glu | | | |
| 145 | 150 | 155 | 160 |
| aaa ggc aaa gct ggg act gcc aca ttg gca atg tca gag aag gtg cgg | | | 648 |
| Lys Gly Lys Ala Gly Thr Ala Thr Leu Ala Met Ser Glu Lys Val Arg | | | |
| 165 | 170 | 175 | |
| acc cgg ctg gag gag ctg gat gac ttt gag gag ggt tcc caa aag gag | | | 696 |
| Thr Arg Leu Glu Glu Leu Asp Asp Phe Glu Glu Gly Ser Gln Lys Glu | | | |
| 180 | 185 | 190 | |
| ctg ttg aac ttg act cag cag gat tac gtg aac cgc ata gag gag ctc | | | 744 |
| Leu Leu Asn Leu Thr Gln Gln Asp Tyr Val Asn Arg Ile Glu Glu Leu | | | |
| 195 | 200 | 205 | |
| aac caa tcg ctg aag gat gcc tgg gcc tca gac cag aaa gtg aag gct | | | 792 |
| Asn Gln Ser Leu Lys Asp Ala Trp Ala Ser Asp Gln Lys Val Lys Ala | | | |
| 210 | 215 | 220 | |
| cta aaa ata gtt cat cca gga aag ctc gtg tac gag cgc atc ttt tcc | | | 840 |
| Leu Lys Ile Val His Pro Gly Lys Leu Val Tyr Glu Arg Ile Phe Ser | | | |
| 225 | 230 | 235 | 240 |
| atg tgt gtg gat agc cgc agc gtc tta cca gat cac ttt tct cca gag | | | 888 |
| Met Cys Val Asp Ser Arg Ser Val Leu Pro Asp His Phe Ser Pro Glu | | | |
| 245 | 250 | 255 | |
| aat gca aat gac acg gcc aag gaa aca tgc cta aat tgg ttt ttc aag | | | 936 |
| Asn Ala Asn Asp Thr Ala Lys Glu Thr Cys Leu Asn Trp Phe Phe Lys | | | |
| 260 | 265 | 270 | |
| att gcc tcc atc agg gaa ctc att cca aga ttt tac gtg gag gca tcc | | | 984 |
| Ile Ala Ser Ile Arg Glu Leu Ile Pro Arg Phe Tyr Val Glu Ala Ser | | | |
| 275 | 280 | 285 | |
| atc ctg aaa tgt aac aaa ttc ctc tcc aaa acg gga att tca gag tgc | | | 1032 |
| Ile Leu Lys Cys Asn Lys Phe Leu Ser Lys Thr Gly Ile Ser Glu Cys | | | |
| 290 | 295 | 300 | |
| ctg ccc cgg ttg aca tgc atg atc aga ggg atc gga gac cca cta gtg | | | 1080 |
| Leu Pro Arg Leu Thr Cys Met Ile Arg Gly Ile Gly Asp Pro Leu Val | | | |
| 305 | 310 | 315 | 320 |
| tcg gtg tat gcc cgt gcc tac ctg tgc cgg gtg gga atg gaa gtg gcc | | | 1128 |
| Ser Val Tyr Ala Arg Ala Tyr Leu Cys Arg Val Gly Met Glu Val Ala | | | |
| 325 | 330 | 335 | |
| cca cat ctc aaa gaa acc cta aat aag aac ttt ttt gac ttc ctc ctt | | | 1176 |
| Pro His Leu Lys Glu Thr Leu Asn Lys Asn Phe Phe Asp Phe Leu Leu | | | |
| 340 | 345 | 350 | |
| acg ttc aaa cag att cat ggg gat acg gtc cag aac cag ctg gtg gtc | | | 1224 |
| Thr Phe Lys Gln Ile His Gly Asp Thr Val Gln Asn Gln Leu Val Val | | | |

| 355 | 360 | 365 | |
|---|-----|-----|------|
| caa gga gtg gag ctc cca tct tac ctc ccc ttg tac ccg cct gcc atg Gln Gly Val Glu Leu Pro Ser Tyr Leu Pro Leu Tyr Pro Pro Ala Met 370 375 380 | | | 1272 |
| gac tgg atc ttc cag tgc atc tcc tac cat gcc ccc gag gct ctg ctg Asp Trp Ile Phe Gln Cys Ile Ser Tyr His Ala Pro Glu Ala Leu Leu 385 390 395 400 | | | 1320 |
| acc gag atg atg gaa agg tgt aag aaa cta gga aac aat gcc ttg ctg Thr Glu Met Met Glu Arg Cys Lys Lys Leu Gly Asn Asn Ala Leu Leu 405 410 415 | | | 1368 |
| ttg aat tct gtg atg tct gcc ttc cgg gct gag ttc atc gcc aca agg Leu Asn Ser Val Met Ser Ala Phe Arg Ala Glu Phe Ile Ala Thr Arg 420 425 430 | | | 1416 |
| tct atg gat ttc att ggc atg att aaa gag tgt gat gaa tct ggt ttc Ser Met Asp Phe Ile Gly Met Ile Lys Glu Cys Asp Glu Ser Gly Phe 435 440 445 | | | 1464 |
| ccc aag cat ctt ctt ttt cga tca ctg gga tta aac ttg gcc ttg gct Pro Lys His Leu Leu Phe Arg Ser Leu Gly Leu Asn Leu Ala Leu Ala 450 455 460 | | | 1512 |
| gat cct cct gag agt gac cga ctt cag att ctc aac gaa gct tgg aaa Asp Pro Pro Glu Ser Asp Arg Leu Gln Ile Leu Asn Glu Ala Trp Lys 465 470 475 480 | | | 1560 |
| gtc atc act aag ctg aag aac cca cag gac tac att aat tgt gcc gaa Val Ile Thr Lys Leu Lys Asn Pro Gln Asp Tyr Ile Asn Cys Ala Glu 485 490 495 | | | 1608 |
| gtg tgg gtg gaa tac acc tgc aag cat ttc acg aaa cga gag gtg aat Val Trp Val Glu Tyr Thr Cys Lys His Phe Thr Lys Arg Glu Val Asn 500 505 510 | | | 1656 |
| acc gtt ttg gca gat gtc atc aag cac atg act cca gat cgt gca ttt Thr Val Leu Ala Asp Val Ile Lys His Met Thr Pro Asp Arg Ala Phe 515 520 525 | | | 1704 |
| gaa gat tcc tac ccc cag ctt cag tta ata att aag aaa gtt att gcc Glu Asp Ser Tyr Pro Gln Leu Gln Leu Ile Ile Lys Lys Val Ile Ala 530 535 540 | | | 1752 |
| cac ttc cat gac ttc tca gtt ctt ttc tca gtg gaa aaa ttt ctg ccg His Phe His Asp Phe Ser Val Leu Phe Ser Val Glu Lys Phe Leu Pro 545 550 555 560 | | | 1800 |
| ttt ctg gac atg ttc caa aaa gag agt gtg cgg gtg gag gtt tgc aaa Phe Leu Asp Met Phe Gln Lys Glu Ser Val Arg Val Glu Val Cys Lys 565 570 575 | | | 1848 |
| tgc atc atg gac gcc ttt atc aag cat caa caa gag ccc acc aag gac Cys Ile Met Asp Ala Phe Ile Lys His Gln Gln Glu Pro Thr Lys Asp 580 585 590 | | | 1896 |
| ccg gtc atc ttg aat gcc ctt ttg cat gtt tgc aag acc atg cat gac Pro Val Ile Leu Asn Ala Leu Leu His Val Cys Lys Thr Met His Asp 595 600 605 | | | 1944 |
| tct gtg aat gca ctc act ctt gag gat gag aaa aga atg ctg tca tat Ser Val Asn Ala Leu Thr Leu Glu Asp Glu Lys Arg Met Leu Ser Tyr | | | 1992 |

| 610 | 615 | 620 | |
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| ttg att aat gga ttt ata aaa atg gtt tcc ttt ggc cgt gat ttt gaa Leu Ile Asn Gly Phe Ile Lys Met Val Ser Phe Gly Arg Asp Phe Glu 625 630 635 640 | | | 2040 |
| caa cag ctg agt ttt tat gtt gag tcc agg tcg atg ttt tgc aat ctg Gln Gln Leu Ser Phe Tyr Val Glu Ser Arg Ser Met Phe Cys Asn Leu 645 650 655 | | | 2088 |
| gag cct gtt ctt gtg cag ttg att cat agt gtg aac cgg ttg gca atg Glu Pro Val Leu Val Gln Leu Ile His Ser Val Asn Arg Leu Ala Met 660 665 670 | | | 2136 |
| gag aca aga aaa gta atg aaa gga aat cat tcc aga aag aca gct gca Glu Thr Arg Lys Val Met Lys Gly Asn His Ser Arg Lys Thr Ala Ala 675 680 685 | | | 2184 |
| ttt gtc cgg gcc tgt gtt gcc tac tgc ttc atc acc atc ccc tcc ctg Phe Val Arg Ala Cys Val Ala Tyr Cys Phe Ile Thr Ile Pro Ser Leu 690 695 700 | | | 2232 |
| gcg ggc atc ttc aca cgt ctc aat ctc tac ctg cat tct ggt cag gtg Ala Gly Ile Phe Thr Arg Leu Asn Leu Tyr Leu His Ser Gly Gln Val 705 710 715 720 | | | 2280 |
| gcc ttg gcc aac cag tgc ctc tcc caa gct gat gct ttt ttc aaa gcc Ala Leu Ala Asn Gln Cys Leu Ser Gln Ala Asp Ala Phe Phe Lys Ala 725 730 735 | | | 2328 |
| gct ata agc ctt gtt ccg gaa gtt cca aag atg att aat att gat ggg Ala Ile Ser Leu Val Pro Glu Val Pro Lys Met Ile Asn Ile Asp Gly 740 745 750 | | | 2376 |
| aag atg cgg cca tcg gaa tcg ttc ctt ctg gaa ttc ctc tgc aat ttc Lys Met Arg Pro Ser Glu Ser Phe Leu Leu Glu Phe Leu Cys Asn Phe 755 760 765 | | | 2424 |
| ttt tct act tta tta ata gtt ccg gat cat cct gaa cat ggg gtc ctg Phe Ser Thr Leu Leu Ile Val Pro Asp His Pro Glu His Gly Val Leu 770 775 780 | | | 2472 |
| ttt ctt gtt cga gag ctt ctc aac gtg atc cag gac tac acc tgg gag Phe Leu Val Arg Glu Leu Leu Asn Val Ile Gln Asp Tyr Thr Trp Glu 785 790 795 800 | | | 2520 |
| gac aac agc gat gag aaa atc cgc atc tac acc tgc gtc ctg cat ctc Asp Asn Ser Asp Glu Lys Ile Arg Ile Tyr Thr Cys Val Leu His Leu 805 810 815 | | | 2568 |
| ctc tcc gcc atg agc cag gag acg tac ctt tac cac ata gac aaa gtg Leu Ser Ala Met Ser Gln Glu Thr Tyr Leu Tyr His Ile Asp Lys Val 820 825 830 | | | 2616 |
| gac tcc aac gac agc ctc tac ggg gga gac tcc aag ttc ctg gca gaa Asp Ser Asn Asp Ser Leu Tyr Gly Gly Asp Ser Lys Phe Leu Ala Glu 835 840 845 | | | 2664 |
| aac aac aag ctg tgt gag acg gtg atg gct cag atc cta gag cat ctg Asn Asn Lys Leu Cys Glu Thr Val Met Ala Gln Ile Leu Glu His Leu 850 855 860 | | | 2712 |
| aaa acc ctg gcc aag gac gag gcc ctg aag cgc cag agc tcg ttg ggc Lys Thr Leu Ala Lys Asp Glu Ala Leu Lys Arg Gln Ser Ser Leu Gly | | | 2760 |

| 865 | 870 | 875 | 880 | |
|--|-----|-----|-----|------|
| ctt tcc ttc ttt aac agc atc ttg gcc cat ggg gac cta cgc aac aac | | | | 2808 |
| Leu Ser Phe Phe Asn Ser Ile Leu Ala His Gly Asp Leu Arg Asn Asn | | | | |
| | 885 | 890 | 895 | |
| aag ctc aac cag ctc tcc gtc aac ctg tgg cac ctg gca cag agg cac | | | | 2856 |
| Lys Leu Asn Gln Leu Ser Val Asn Leu Trp His Leu Ala Gln Arg His | | | | |
| | 900 | 905 | 910 | |
| ggc tgt gca gac acc agg acc atg gtg aaa acg cta gaa tac atc aag | | | | 2904 |
| Gly Cys Ala Asp Thr Arg Thr Met Val Lys Thr Leu Glu Tyr Ile Lys | | | | |
| | 915 | 920 | 925 | |
| aag caa agc aaa caa cca gac atg act cat ctg acg gag ctg gcc ctc | | | | 2952 |
| Lys Gln Ser Lys Gln Pro Asp Met Thr His Leu Thr Glu Leu Ala Leu | | | | |
| | 930 | 935 | 940 | |
| aga ctc cct ctg caa aca agg acc tga ccccc gggcccatcc ccaggctcag | | | | 3004 |
| Arg Leu Pro Leu Gln Thr Arg Thr * | | | | |
| 945 | 950 | | | |
| ggactctgggt gccaaatcca gaaagatctg ctctgctgcc ctgaactctt acggcaattt | | | | 3064 |
| aggtttctca tttttctttt ctttttacat atgtacaaat tgttttaagc tttggcctct | | | | 3124 |
| atccagggtta ttctgacaat gaagaaatgg gagttgtcag agcattaaaa tgcaatcttc | | | | 3184 |
| actaagaagc agtctctgtg ttgtctttgc acaagtggcc ttcggtctac tcagcccgat | | | | 3244 |
| ctgatggggc ttttttagcaa gagagaaaca agaatgcaag taacatcttt cttctctgga | | | | 3304 |
| aggtgtttgt tttttcatag tttagaaata aggactttaa aagtggactg cttttcaaag | | | | 3364 |
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| tccctgggtac cctgtgggggt cttgataata aaatttggtt tctcttgatg tgctttcagt | 120 |
| tgggatgtta aactgcctg tgcaacctgg cagaagaatg aatgtgagat gtggcttctc | 180 |
| tggacactgg ccagacctgt ggcattctctg accctgttga ccaccaacct gcaaagactc | 240 |

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caggtcgaga cagcaggcgg ctcaagtgga cagccggg atg gca gag cgt gcg 713
Met Ala Glu Arg Ala
1 5

gcg ctg gag gag ctg gtg aaa ctt cag gga gag cgc gtg cga ggc ctc 761
Ala Leu Glu Glu Leu Val Lys Leu Gln Gly Glu Arg Val Arg Gly Leu
10 15 20

aag cag cag aag gcc agc gcc gag ctg atc gag gag gag gtg gcg aaa 809
Lys Gln Gln Lys Ala Ser Ala Glu Leu Ile Glu Glu Glu Val Ala Lys
25 30 35

ctc ctg aaa ctg aag gca cag ctg ggt cct gat gaa agc aaa cag aaa 857
Leu Leu Lys Leu Lys Ala Gln Leu Gly Pro Asp Glu Ser Lys Gln Lys
40 45 50

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Phe Val Leu Lys Thr Pro Lys Gly Thr Arg Asp Tyr Ser Pro Arg Gln
55 60 65

atg gca gtt cgc gag aag gtg ttt gac gta atc atc cgt tgc ttc aag 953
Met Ala Val Arg Glu Lys Val Phe Asp Val Ile Ile Arg Cys Phe Lys
70 75 80 85

cgc cac ggt gca gaa gtc att gat aca cct gta ttt gaa cta aag gaa 1001
Arg His Gly Ala Glu Val Ile Asp Thr Pro Val Phe Glu Leu Lys Glu
90 95 100

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Thr Leu Met Gly Lys Tyr Gly Glu Asp Ser Lys Leu Ile Tyr Asp Leu
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Lys Asp Gln Gly Gly Glu Leu Leu Ser Leu Arg Tyr Asp Leu Thr Val
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Pro Phe Ala Arg Tyr Leu Ala Met Asn Lys Leu Thr Asn Ile Lys Arg
135 140 145

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Tyr His Ile Ala Lys Val Tyr Arg Arg Asp Asn Pro Ala Met Thr Arg
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ggc cga tac cgg gaa ttc tac cag tgt gat ttt gac att gct ggg aac 1241
Gly Arg Tyr Arg Glu Phe Tyr Gln Cys Asp Phe Asp Ile Ala Gly Asn
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ttt gat ccc atg atc cct gat gca gag tgc ctg aag atc atg tgc gag 1289

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| | |
|---|------|
| Phe Asp Pro Met Ile Pro Asp Ala Glu Cys Leu Lys Ile Met Cys Glu | |
| 185 190 195 | |
| atc ctg agt tca ctt cag ata ggc gac ttc ctg gtc aag gta aac gat | 1337 |
| Ile Leu Ser Ser Leu Gln Ile Gly Asp Phe Leu Val Lys Val Asn Asp | |
| 200 205 210 | |
| cga cgc att cta gat ggg atg ttt gct atc tgt ggt gtt tct gac agc | 1385 |
| Arg Arg Ile Leu Asp Gly Met Phe Ala Ile Cys Gly Val Ser Asp Ser | |
| 215 220 225 | |
| aag ttc cgt acc atc tgc tcc tca gta gac aag ctg gac aag gtg tcc | 1433 |
| Lys Phe Arg Thr Ile Cys Ser Ser Val Asp Lys Leu Asp Lys Val Ser | |
| 230 235 240 245 | |
| tgg gaa gag gtg aag aat gag atg gtg gga gag aag ggc ctt gca cct | 1481 |
| Trp Glu Glu Val Lys Asn Glu Met Val Gly Glu Lys Gly Leu Ala Pro | |
| 250 255 260 | |
| gag gtg gct gac cgc att ggg gac tat gtc cag caa cat ggt ggg gta | 1529 |
| Glu Val Ala Asp Arg Ile Gly Asp Tyr Val Gln Gln His Gly Gly Val | |
| 265 270 275 | |
| tcc ctg gtg gaa cag ctg ctc cag gat cct aaa cta tcc caa aac aag | 1577 |
| Ser Leu Val Glu Gln Leu Leu Gln Asp Pro Lys Leu Ser Gln Asn Lys | |
| 280 285 290 | |
| cag gcc ttg gag ggc ctg gga gac ctg aag ttg ctc ttt gag tac ctg | 1625 |
| Gln Ala Leu Glu Gly Leu Gly Asp Leu Lys Leu Leu Phe Glu Tyr Leu | |
| 295 300 305 | |
| acc cta ttt ggc att gat gac aaa atc tcc ttt gac ctg agc ctt gct | 1673 |
| Thr Leu Phe Gly Ile Asp Asp Lys Ile Ser Phe Asp Leu Ser Leu Ala | |
| 310 315 320 325 | |
| cga ggg ctg gat tac tac act ggg gtg atc tat gag gca gtg ctg cta | 1721 |
| Arg Gly Leu Asp Tyr Tyr Thr Gly Val Ile Tyr Glu Ala Val Leu Leu | |
| 330 335 340 | |
| cag acc cca gcc cag gca ggg gaa gag ccc ctg ggt gtg ggc agt gtg | 1769 |
| Gln Thr Pro Ala Gln Ala Gly Glu Glu Pro Leu Gly Val Gly Ser Val | |
| 345 350 355 | |
| gct gct gga gga cgc tat gat ggg cta gtg ggc atg ttc gac ccc aaa | 1817 |
| Ala Ala Gly Gly Arg Tyr Asp Gly Leu Val Gly Met Phe Asp Pro Lys | |
| 360 365 370 | |
| ggg cgc aag gtg cca tgt gtg ggg ctc agc att ggg gtg gag cgg att | 1865 |
| Gly Arg Lys Val Pro Cys Val Gly Leu Ser Ile Gly Val Glu Arg Ile | |
| 375 380 385 | |
| ttc tcc atc gtg gaa cag aga cta gag gct ttg gag gag aag ata cgg | 1913 |
| Phe Ser Ile Val Glu Gln Arg Leu Glu Ala Leu Glu Glu Lys Ile Arg | |
| 390 395 400 405 | |
| acc acg gag aca cag gtg ctt gtg gca tct gca cag aag aag ctg cta | 1961 |
| Thr Thr Glu Thr Gln Val Leu Val Ala Ser Ala Gln Lys Lys Leu Leu | |
| 410 415 420 | |
| gag gaa aga cta aag ctt gtc tca gaa ctg tgg gat gct ggg atc aag | 2009 |
| Glu Glu Arg Leu Lys Leu Val Ser Glu Leu Trp Asp Ala Gly Ile Lys | |
| 425 430 435 | |
| gct gag ctg ctg tac aag aag aac cca aag cta ctg aac cag tta cag | 2057 |

| | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|------------|------------|------------|-----|-----|-------|------------|------------|-----|-----|-----|-----|------|
| Ala | Glu | Leu | Leu | Tyr | Lys | Lys | Asn | Pro | Lys | Leu | Leu | Asn | Gln | Leu | Gln | |
| | | 440 | | | | | 445 | | | | | 450 | | | | |
| tac | tgt | gag | gag | gca | ggc | atc | cca | ctg | gtg | gct | atc | atc | ggc | gag | cag | 2105 |
| Tyr | Cys | Glu | Glu | Ala | Gly | Ile | Pro | Leu | Val | Ala | Ile | Ile | Gly | Glu | Gln | |
| | 455 | | | | | 460 | | | | | 465 | | | | | |
| gaa | ctc | aag | gat | ggg | gtc | atc | aag | ctc | cgt | tca | gtg | acg | agc | agg | gaa | 2153 |
| Glu | Leu | Lys | Asp | Gly | Val | Ile | Lys | Leu | Arg | Ser | Val | Thr | Ser | Arg | Glu | |
| | 470 | | | | 475 | | | | 480 | | | | | 485 | | |
| gag | gtg | gat | gtc | cga | aga | gaa | gac | ctt | gtg | gag | gaa | atc | aaa | agg | aga | 2201 |
| Glu | Val | Asp | Val | Arg | Arg | Glu | Asp | Leu | Val | Glu | Glu | Ile | Lys | Arg | Arg | |
| | | | | 490 | | | | | 495 | | | | | 500 | | |
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| Thr | Gly | Gln | Pro | Leu | Cys | Ile | Cys | * | | | | | | | | |
| | | 505 | | | | | 510 | | | | | | | | | |
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| tatgggttatt | ttattgatta | ttactggcaa | aaacggccag | gtacaacacc | tttttcatac | | | | | | | | | | | 2433 |
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| cgcctcctcc | caattgtgca tttttgcagc cggaggcggc tccgagatgg ggctgtgagc 180 |
| ttcgccccggg | gaggggggaaa gagcagcgag gagtgaagcg ggggggtggg gtgaagggtt 240 |
| tggatttcgg | ggcaggggggc gcacccccgt cagcaggccc tccccaaggg gctcggaact 300 |
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Met Leu Thr
1

ccg ccg ttg ctc ctg ctg ctg ccc ctg ctc tca gct ctg gtc gcg gcg 523
Pro Pro Leu Leu Leu Leu Leu Pro Leu Leu Ser Ala Leu Val Ala Ala
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gct atc gac gcc cct aag act tgc agc ccc aag cag ttt gcc tgc aga 571
Ala Ile Asp Ala Pro Lys Thr Cys Ser Pro Lys Gln Phe Ala Cys Arg
20 25 30 35

gat caa ata acc tgt atc tca aag ggc tgg cgg tgc gac ggt gag agg 619
Asp Gln Ile Thr Cys Ile Ser Lys Gly Trp Arg Cys Asp Gly Glu Arg
40 45 50

gac tgc cca gac gga tct gac gag gcc cct gag att tgt cca cag agt 667
Asp Cys Pro Asp Gly Ser Asp Glu Ala Pro Glu Ile Cys Pro Gln Ser
55 60 65

aag gcc cag cga tgc cag cca aac gag cat aac tgc ctg ggt act gag 715
Lys Ala Gln Arg Cys Gln Pro Asn Glu His Asn Cys Leu Gly Thr Glu
70 75 80

ctg tgt gtt ccc atg tcc cgc ctc tgc aat ggg gtc cag gac tgc atg 763
Leu Cys Val Pro Met Ser Arg Leu Cys Asn Gly Val Gln Asp Cys Met
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Asp Gly Ser Asp Glu Gly Pro His Cys Arg Glu Leu Gln Gly Asn Cys
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Ser Arg Leu Gly Cys Gln His His Cys Val Pro Thr Leu Asp Gly Pro
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acc tgc tac tgc aac agc agc ttt cag ctt cag gca gat ggc aag acc 907
Thr Cys Tyr Cys Asn Ser Ser Phe Gln Leu Gln Ala Asp Gly Lys Thr
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Cys Lys Asp Phe Asp Glu Cys Ser Val Tyr Gly Thr Cys Ser Gln Leu
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tgc acc aac aca gac ggc tcc ttc ata tgt ggc tgt gtt gaa gga tac 1003
Cys Thr Asn Thr Asp Gly Ser Phe Ile Cys Gly Cys Val Glu Gly Tyr
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Leu Leu Gln Pro Asp Asn Arg Ser Cys Lys Ala Lys Asn Glu Pro Val
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Asp Arg Pro Pro Val Leu Leu Ile Ala Asn Ser Gln Asn Ile Leu Ala
200 205 210

acg tac ctg agt ggg gcc cag gtg tct acc atc aca cct acg agc acg 1147
Thr Tyr Leu Ser Gly Ala Gln Val Ser Thr Ile Thr Pro Thr Ser Thr
215 220 225

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Arg Gln Thr Thr Ala Met Asp Phe Ser Tyr Ala Asn Glu Thr Val Cys

| 230 | 235 | 240 | |
|---|-----|-----|------|
| tgg gtg cat gtt ggg gac agt gct gct cag acg cag ctc aag tgt gcc Trp Val His Val Gly Asp Ser Ala Ala Gln Thr Gln Leu Lys Cys Ala 245 250 255 | | | 1243 |
| cgc atg cct ggc cta aag ggc ttc gtg gat gag cac acc atc aac atc Arg Met Pro Gly Leu Lys Gly Phe Val Asp Glu His Thr Ile Asn Ile 260 265 270 275 | | | 1291 |
| tcc ctc agt ctg cac cac gtg gaa cag atg gcc atc gac tgg ctg aca Ser Leu Ser Leu His His Val Glu Gln Met Ala Ile Asp Trp Leu Thr 280 285 290 | | | 1339 |
| ggc aac ttc tac ttt gtg gat gac atc gat gat agg atc ttt gtc tgc Gly Asn Phe Tyr Phe Val Asp Asp Ile Asp Asp Arg Ile Phe Val Cys 295 300 305 | | | 1387 |
| aac aga aat ggg gac aca tgt gtc aca ttg cta gac ctg gaa ctc tac Asn Arg Asn Gly Asp Thr Cys Val Thr Leu Leu Asp Leu Glu Leu Tyr 310 315 320 | | | 1435 |
| aac ccc aag ggc att gcc ctg gac cct gcc atg ggg aag gtg ttt ttc Asn Pro Lys Gly Ile Ala Leu Asp Pro Ala Met Gly Lys Val Phe Phe 325 330 335 | | | 1483 |
| act gac tat ggg cag atc cca aag gtg gaa cgc tgt gac atg gat ggg Thr Asp Tyr Gly Gln Ile Pro Lys Val Glu Arg Cys Asp Met Asp Gly 340 345 350 355 | | | 1531 |
| cag aac cgc acc aag ctc gtc gac agc aag att gtg ttt cct cat ggc Gln Asn Arg Thr Lys Leu Val Asp Ser Lys Ile Val Phe Pro His Gly 360 365 370 | | | 1579 |
| atc acg ctg gac ctg gtc agc cgc ctt gtc tac tgg gca gat gcc tat Ile Thr Leu Asp Leu Val Ser Arg Leu Val Tyr Trp Ala Asp Ala Tyr 375 380 385 | | | 1627 |
| ctg gac tat att gaa gtg gtg gac tat gag ggc aag ggc cgc cag acc Leu Asp Tyr Ile Glu Val Val Asp Tyr Glu Gly Lys Gly Arg Gln Thr 390 395 400 | | | 1675 |
| atc atc cag ggc atc ctg att gag cac ctg tac ggc ctg act gtg ttt Ile Ile Gln Gly Ile Leu Ile Glu His Leu Tyr Gly Leu Thr Val Phe 405 410 415 | | | 1723 |
| gag aat tat ctc tat gcc acc aac tcg gac aat gcc aat gcc cag cag Glu Asn Tyr Leu Tyr Ala Thr Asn Ser Asp Asn Ala Asn Ala Gln Gln 420 425 430 435 | | | 1771 |
| aag acg agt gtg atc cgt gtg aac cgc ttt aac agc acc gag tac cag Lys Thr Ser Val Ile Arg Val Asn Arg Phe Asn Ser Thr Glu Tyr Gln 440 445 450 | | | 1819 |
| gtt gtc acc cgg gtg gac aag ggt ggt gcc ctc cac atc tac cac cag Val Val Thr Arg Val Asp Lys Gly Gly Ala Leu His Ile Tyr His Gln 455 460 465 | | | 1867 |
| agg cgt cag ccc cga gtg agg agc cat gcc tgt gaa aac gac cag tat Arg Arg Gln Pro Arg Val Arg Ser His Ala Cys Glu Asn Asp Gln Tyr 470 475 480 | | | 1915 |
| ggg aag ccg ggt ggc tgc tct gac atc tgc ctg ctg gcc aac agc cac Gly Lys Pro Gly Gly Cys Ser Asp Ile Cys Leu Leu Ala Asn Ser His 1963 | | | |

| 485 | 490 | 495 | |
|---|-----|-----|------|
| aag gcg cgg acc tgc cgc tgc cgt tcc ggc ttc agc ctg ggc agt gac Lys Ala Arg Thr Cys Arg Cys Arg Ser Gly Phe Ser Leu Gly Ser Asp 500 505 510 515 | | | 2011 |
| ggg aag tca tgc aag aag ccg gag cat gag ctg ttc ctc gtg tat ggc Gly Lys Ser Cys Lys Lys Pro Glu His Glu Leu Phe Leu Val Tyr Gly 520 525 530 | | | 2059 |
| aag ggc cgg cca ggc atc atc cgg ggc atg gat atg ggg gcc aag gtc Lys Gly Arg Pro Gly Ile Ile Arg Gly Met Asp Met Gly Ala Lys Val 535 540 545 | | | 2107 |
| ccg gat gag cac atg atc ccc att gaa aac ctc atg aac ccc cga gcc Pro Asp Glu His Met Ile Pro Ile Glu Asn Leu Met Asn Pro Arg Ala 550 555 560 | | | 2155 |
| ctg gac ttc cac gct gag acc ggc ttc atc tac ttt gcc gac acc acc Leu Asp Phe His Ala Glu Thr Gly Phe Ile Tyr Phe Ala Asp Thr Thr 565 570 575 | | | 2203 |
| agc tac ctc att ggc cgc cag aag att gat ggc act gag cgg gag acc Ser Tyr Leu Ile Gly Arg Gln Lys Ile Asp Gly Thr Glu Arg Glu Thr 580 585 590 595 | | | 2251 |
| atc ctg aag gac ggc atc cac aat gtg gag ggt gtg gcc gtg gac tgg Ile Leu Lys Asp Gly Ile His Asn Val Glu Gly Val Ala Val Asp Trp 600 605 610 | | | 2299 |
| atg gga gac aat ctg tac tgg acg gac gat ggg ccc aaa aag aca atc Met Gly Asp Asn Leu Tyr Trp Thr Asp Asp Gly Pro Lys Lys Thr Ile 615 620 625 | | | 2347 |
| agc gtg gcc agg ctg gag aaa gct gct cag acc cgc aag act tta atc Ser Val Ala Arg Leu Glu Lys Ala Ala Gln Thr Arg Lys Thr Leu Ile 630 635 640 | | | 2395 |
| gag ggc aaa atg aca cac ccc agg gct att gtg gtg gat cca ctc aat Glu Gly Lys Met Thr His Pro Arg Ala Ile Val Val Asp Pro Leu Asn 645 650 655 | | | 2443 |
| ggg tgg atg tac tgg aca gac tgg gag gag gac ccc aag gac agt cgg Gly Trp Met Tyr Trp Thr Asp Trp Glu Glu Asp Pro Lys Asp Ser Arg 660 665 670 675 | | | 2491 |
| cgt ggg cgg ctg gag agg gcg tgg atg gat ggc tca cac cga gac atc Arg Gly Arg Leu Glu Arg Ala Trp Met Asp Gly Ser His Arg Asp Ile 680 685 690 | | | 2539 |
| ttt gtc acc tcc aag aca gtg ctt tgg ccc aat ggg cta agc ctg gac Phe Val Thr Ser Lys Thr Val Leu Trp Pro Asn Gly Leu Ser Leu Asp 695 700 705 | | | 2587 |
| atc ccg gct ggg cgc ctc tac tgg gtg gat gcc ttc tac gac cgc atc Ile Pro Ala Gly Arg Leu Tyr Trp Val Asp Ala Phe Tyr Asp Arg Ile 710 715 720 | | | 2635 |
| gag acg ata ctg ctc aat ggc aca gac cgg aag att gtg tat gaa ggt Glu Thr Ile Leu Leu Asn Gly Thr Asp Arg Lys Ile Val Tyr Glu Gly 725 730 735 | | | 2683 |
| cct gag ctg aac cac gcc ttt ggc ctg tgt cac cat ggc aac tac ctc Pro Glu Leu Asn His Ala Phe Gly Leu Cys His His Gly Asn Tyr Leu | | | 2731 |

| 740 | 745 | 750 | 755 | |
|---|-----|-----|-----|------|
| ttc tgg act gag tat cgg agt ggc agt gtc tac cgc ttg gaa cgg ggt | | | | 2779 |
| Phe Trp Thr Glu Tyr Arg Ser Gly Ser Val Tyr Arg Leu Glu Arg Gly | | | | |
| | 760 | 765 | 770 | |
| gta gga ggc gca ccc ccc act gtg acc ctt ctg cgc agt gag cgg ccc | | | | 2827 |
| Val Gly Gly Ala Pro Pro Thr Val Thr Leu Leu Arg Ser Glu Arg Pro | | | | |
| | 775 | 780 | 785 | |
| ccc atc ttt gag atc cga atg tat gat gcc cag cag cag caa gtt ggc | | | | 2875 |
| Pro Ile Phe Glu Ile Arg Met Tyr Asp Ala Gln Gln Gln Gln Val Gly | | | | |
| | 790 | 795 | 800 | |
| acc aac aaa tgc cgg gtg aac aat ggc ggc tgc agc agc ctg tgc ttg | | | | 2923 |
| Thr Asn Lys Cys Arg Val Asn Asn Gly Gly Cys Ser Ser Leu Cys Leu | | | | |
| | 805 | 810 | 815 | |
| gcc acc cct ggg agc cgc cag tgc gcc tgt gct gag gac cag gtg ttg | | | | 2971 |
| Ala Thr Pro Gly Ser Arg Gln Cys Ala Cys Ala Glu Asp Gln Val Leu | | | | |
| | 820 | 825 | 830 | 835 |
| gac gca gac ggc gtc act tgc ttg gcg aac cca tcc tac gtg cct cca | | | | 3019 |
| Asp Ala Asp Gly Val Thr Cys Leu Ala Asn Pro Ser Tyr Val Pro Pro | | | | |
| | 840 | 845 | 850 | |
| ccc cag tgc cag cca ggc gag ttt gcc tgt gcc aac agc cgc tgc atc | | | | 3067 |
| Pro Gln Cys Gln Pro Gly Glu Phe Ala Cys Ala Asn Ser Arg Cys Ile | | | | |
| | 855 | 860 | 865 | |
| cag gag cgc tgg aag tgt gac gga gac aac gat tgc ctg gac aac agt | | | | 3115 |
| Gln Glu Arg Trp Lys Cys Asp Gly Asp Asn Asp Cys Leu Asp Asn Ser | | | | |
| | 870 | 875 | 880 | |
| gat gag gcc cca gcc ctc tgc cat cag cac acc tgc ccc tcg gac cga | | | | 3163 |
| Asp Glu Ala Pro Ala Leu Cys His Gln His Thr Cys Pro Ser Asp Arg | | | | |
| | 885 | 890 | 895 | |
| ttc aag tgc gag aac aac cgg tgc atc ccc aac cgc tgg ctc tgc gac | | | | 3211 |
| Phe Lys Cys Glu Asn Asn Arg Cys Ile Pro Asn Arg Trp Leu Cys Asp | | | | |
| | 900 | 905 | 910 | 915 |
| ggg gac aat gac tgt ggg aac agt gaa gat gag tcc aat gcc act tgt | | | | 3259 |
| Gly Asp Asn Asp Cys Gly Asn Ser Glu Asp Glu Ser Asn Ala Thr Cys | | | | |
| | 920 | 925 | 930 | |
| tca gcc cgc acc tgc ccc ccc aac cag ttc tcc tgt gcc agt ggc cgc | | | | 3307 |
| Ser Ala Arg Thr Cys Pro Pro Asn Gln Phe Ser Cys Ala Ser Gly Arg | | | | |
| | 935 | 940 | 945 | |
| tgc atc ccc atc tcc tgg acg tgt gat ctg gat gac gac tgt ggg gac | | | | 3355 |
| Cys Ile Pro Ile Ser Trp Thr Cys Asp Leu Asp Asp Asp Cys Gly Asp | | | | |
| | 950 | 955 | 960 | |
| cgc tct gat gag tct gct tcg tgt gcc tat ccc acc tgc ttc ccc ctg | | | | 3403 |
| Arg Ser Asp Glu Ser Ala Ser Cys Ala Tyr Pro Thr Cys Phe Pro Leu | | | | |
| | 965 | 970 | 975 | |
| act cag ttt acc tgc aac aat ggc aga tgt atc aac atc aac tgg aga | | | | 3451 |
| Thr Gln Phe Thr Cys Asn Asn Gly Arg Cys Ile Asn Ile Asn Trp Arg | | | | |
| | 980 | 985 | 990 | 995 |
| tgc gac aat gac aat gac tgt ggg gac aac agt gac gaa gcc ggc tgc | | | | 3499 |
| Cys Asp Asn Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Ala Gly Cys | | | | |

| | 1000 | 1005 | 1010 | |
|---|------|------|------|------|
| agc cac tcc tgt tct agc acc cag ttc aag tgc aac agc ggg cgt tgc | | | | 3547 |
| Ser His Ser Cys Ser Ser Thr Gln Phe Lys Cys Asn Ser Gly Arg Cys | 1015 | 1020 | 1025 | |
| atc ccc gag cac tgg acc tgc gat ggg gac aat gac tgc gga gac tac | | | | 3595 |
| Ile Pro Glu His Trp Thr Cys Asp Gly Asp Asn Asp Cys Gly Asp Tyr | 1030 | 1035 | 1040 | |
| agt gat gag aca cac gcc aac tgc acc aac cag gcc acg agg ccc cct | | | | 3643 |
| Ser Asp Glu Thr His Ala Asn Cys Thr Asn Gln Ala Thr Arg Pro Pro | 1045 | 1050 | 1055 | |
| ggc ggc tgc cac act gat gag ttc cag tgc cgg ctg gat gga cta tgc | | | | 3691 |
| Gly Gly Cys His Thr Asp Glu Phe Gln Cys Arg Leu Asp Gly Leu Cys | 1060 | 1065 | 1070 | 1075 |
| atc ccc ctg cgg tgg cgc tgc gat ggg gac act gac tgc atg gac tcc | | | | 3739 |
| Ile Pro Leu Arg Trp Arg Cys Asp Gly Asp Thr Asp Cys Met Asp Ser | 1080 | 1085 | 1090 | |
| agc gat gag aag agc tgt gag gga gtg acc cac gtc tgc gat ccc agt | | | | 3787 |
| Ser Asp Glu Lys Ser Cys Glu Gly Val Thr His Val Cys Asp Pro Ser | 1095 | 1100 | 1105 | |
| gtc aag ttt ggc tgc aag gac tca gct cgg tgc atc agc aaa gcg tgg | | | | 3835 |
| Val Lys Phe Gly Cys Lys Asp Ser Ala Arg Cys Ile Ser Lys Ala Trp | 1110 | 1115 | 1120 | |
| gtg tgt gat ggc gac aat gac tgt gag gat aac tcg gac gag gag aac | | | | 3883 |
| Val Cys Asp Gly Asp Asn Asp Cys Glu Asp Asn Ser Asp Glu Glu Asn | 1125 | 1130 | 1135 | |
| tgc gag tcc ctg gcc tgc agg cca ccc tcg cac cct tgt gcc aac aac | | | | 3931 |
| Cys Glu Ser Leu Ala Cys Arg Pro Pro Ser His Pro Cys Ala Asn Asn | 1140 | 1145 | 1150 | 1155 |
| acc tca gtc tgc ctg ccc cct gac aag ctg tgt gat ggc aac gac gac | | | | 3979 |
| Thr Ser Val Cys Leu Pro Pro Asp Lys Leu Cys Asp Gly Asn Asp Asp | 1160 | 1165 | 1170 | |
| tgt ggc gac ggc tca gat gag ggc gag ctc tgt gac cag tgc tct ctg | | | | 4027 |
| Cys Gly Asp Gly Ser Asp Glu Gly Glu Leu Cys Asp Gln Cys Ser Leu | 1175 | 1180 | 1185 | |
| aat aac ggt ggc tgc agc cac aac tgc tca gtg gca cct ggc gaa ggc | | | | 4075 |
| Asn Asn Gly Gly Cys Ser His Asn Cys Ser Val Ala Pro Gly Glu Gly | 1190 | 1195 | 1200 | |
| att gtg tgt tcc tgc cct ctg ggc atg gag ctg ggg ccc gac aac cac | | | | 4123 |
| Ile Val Cys Ser Cys Pro Leu Gly Met Glu Leu Gly Pro Asp Asn His | 1205 | 1210 | 1215 | |
| acc tgc cag atc cag agc tac tgt gcc aag cat ctc aaa tgc agc caa | | | | 4171 |
| Thr Cys Gln Ile Gln Ser Tyr Cys Ala Lys His Leu Lys Cys Ser Gln | 1220 | 1225 | 1230 | 1235 |
| aag tgc gac cag aac aag ttc agc gtg aag tgc tcc tgc tac gag ggc | | | | 4219 |
| Lys Cys Asp Gln Asn Lys Phe Ser Val Lys Cys Ser Cys Tyr Glu Gly | 1240 | 1245 | 1250 | |
| tgg gtc ctg gaa cct gac ggc gag agc tgc cgc agc ctg gac ccc ttc | | | | 4267 |
| Trp Val Leu Glu Pro Asp Gly Glu Ser Cys Arg Ser Leu Asp Pro Phe | | | | |

| 1255 | 1260 | 1265 | |
|---|------|------|------|
| aag ccg ttc atc att ttc tcc aac cgc cat gaa atc cgg cgc atc gat | | | 4315 |
| Lys Pro Phe Ile Ile Phe Ser Asn Arg His Glu Ile Arg Arg Ile Asp | | | |
| 1270 | 1275 | 1280 | |
| ctt cac aaa gga gac tac agc gtc ctg gtg ccc ggc ctg cgc aac acc | | | 4363 |
| Leu His Lys Gly Asp Tyr Ser Val Leu Val Pro Gly Leu Arg Asn Thr | | | |
| 1285 | 1290 | 1295 | |
| atc gcc ctg gac ttc cac ctc agc cag agc gcc ctc tac tgg acc gac | | | 4411 |
| Ile Ala Leu Asp Phe His Leu Ser Gln Ser Ala Leu Tyr Trp Thr Asp | | | |
| 1300 | 1305 | 1310 | 1315 |
| gtg gtg gag gac aag atc tac cgc ggg aag ctg ctg gac aac gga gcc | | | 4459 |
| Val Val Glu Asp Lys Ile Tyr Arg Gly Lys Leu Leu Asp Asn Gly Ala | | | |
| 1320 | 1325 | 1330 | |
| ctg act agt ttc gag gtg gtg att cag tat ggc ctg gcc aca ccc gag | | | 4507 |
| Leu Thr Ser Phe Glu Val Val Ile Gln Tyr Gly Leu Ala Thr Pro Glu | | | |
| 1335 | 1340 | 1345 | |
| ggc ctg gct gta gac tgg att gca ggc aac atc tac tgg gtg gag agt | | | 4555 |
| Gly Leu Ala Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Val Glu Ser | | | |
| 1350 | 1355 | 1360 | |
| aac ctg gat cag atc gag gtg gcc aag ctg gat ggg acc ctc cgg acc | | | 4603 |
| Asn Leu Asp Gln Ile Glu Val Ala Lys Leu Asp Gly Thr Leu Arg Thr | | | |
| 1365 | 1370 | 1375 | |
| acc ctg ctg gcc ggt gac att gag cac cca agg gca atc gca ctg gat | | | 4651 |
| Thr Leu Leu Ala Gly Asp Ile Glu His Pro Arg Ala Ile Ala Leu Asp | | | |
| 1380 | 1385 | 1390 | 1395 |
| ccc cgg gat ggg atc ctg ttt tgg aca gac tgg gat gcc agc ctg ccc | | | 4699 |
| Pro Arg Asp Gly Ile Leu Phe Trp Thr Asp Trp Asp Ala Ser Leu Pro | | | |
| 1400 | 1405 | 1410 | |
| cgc att gag gca gcc tcc atg agt ggg gct ggg cgc cgc acc gtg cac | | | 4747 |
| Arg Ile Glu Ala Ala Ser Met Ser Gly Ala Gly Arg Arg Thr Val His | | | |
| 1415 | 1420 | 1425 | |
| cgg gag acc ggc tct ggg ggc tgg ccc aac ggg ctc acc gtg gac tac | | | 4795 |
| Arg Glu Thr Gly Ser Gly Gly Trp Pro Asn Gly Leu Thr Val Asp Tyr | | | |
| 1430 | 1435 | 1440 | |
| ctg gag aag cgc atc ctt tgg att gac gcc agg tca gat gcc att tac | | | 4843 |
| Leu Glu Lys Arg Ile Leu Trp Ile Asp Ala Arg Ser Asp Ala Ile Tyr | | | |
| 1445 | 1450 | 1455 | |
| tca gcc cgt tac gac ggc tct ggc cac atg gag gtg ctt cgg gga cac | | | 4891 |
| Ser Ala Arg Tyr Asp Gly Ser Gly His Met Glu Val Leu Arg Gly His | | | |
| 1460 | 1465 | 1470 | 1475 |
| gag ttc ctg tcg cac ccg ttt gca gtg acg ctg tac ggg ggg gag gtc | | | 4939 |
| Glu Phe Leu Ser His Pro Phe Ala Val Thr Leu Tyr Gly Gly Glu Val | | | |
| 1480 | 1485 | 1490 | |
| tac tgg act gac tgg cga aca aac aca ctg gct aag gcc aac aag tgg | | | 4987 |
| Tyr Trp Thr Asp Trp Arg Thr Asn Thr Leu Ala Lys Ala Asn Lys Trp | | | |
| 1495 | 1500 | 1505 | |
| acc ggc cac aat gtc acc gtg gta cag agg acc aac acc cag ccc ttt | | | 5035 |
| Thr Gly His Asn Val Thr Val Val Gln Arg Thr Asn Thr Gln Pro Phe | | | |

| 1510 | 1515 | 1520 | |
|---|------|------|------|
| gac ctg cag gtg tac cac ccc tcc cgc cag ccc atg gct ccc aat ccc | | | 5083 |
| Asp Leu Gln Val Tyr His Pro Ser Arg Gln Pro Met Ala Pro Asn Pro | | | |
| 1525 | 1530 | 1535 | |
| tgt gag gcc aat ggg ggc cag ggc ccc tgc tcc cac ctg tgt ctc atc | | | 5131 |
| Cys Glu Ala Asn Gly Gly Gln Gly Pro Cys Ser His Leu Cys Leu Ile | | | |
| 1540 | 1545 | 1550 | 1555 |
| aac tac aac cgg acc gtg tcc tgc gcc tgc ccc cac ctc atg aag ctc | | | 5179 |
| Asn Tyr Asn Arg Thr Val Ser Cys Ala Cys Pro His Leu Met Lys Leu | | | |
| | 1560 | 1565 | 1570 |
| cac aag gac aac acc acc tgc tat gag ttt aag aag ttc ctg ctg tac | | | 5227 |
| His Lys Asp Asn Thr Thr Cys Tyr Glu Phe Lys Lys Phe Leu Leu Tyr | | | |
| | 1575 | 1580 | 1585 |
| gca cgt cag atg gag atc cga ggt gtg gac ctg gat gct ccc tac tac | | | 5275 |
| Ala Arg Gln Met Glu Ile Arg Gly Val Asp Leu Asp Ala Pro Tyr Tyr | | | |
| | 1590 | 1595 | 1600 |
| aac tac atc atc tcc ttc acg gtg ccc gac atc gac aac gtc aca gtg | | | 5323 |
| Asn Tyr Ile Ile Ser Phe Thr Val Pro Asp Ile Asp Asn Val Thr Val | | | |
| | 1605 | 1610 | 1615 |
| cta gac tac gat gcc cgc gag cag cgt gtg tac tgg tct gac gtg cgg | | | 5371 |
| Leu Asp Tyr Asp Ala Arg Glu Gln Arg Val Tyr Trp Ser Asp Val Arg | | | |
| 1620 | 1625 | 1630 | 1635 |
| aca cag gcc atc aag cgg gcc ttc atc aac ggc aca ggc gtg gag aca | | | 5419 |
| Thr Gln Ala Ile Lys Arg Ala Phe Ile Asn Gly Thr Gly Val Glu Thr | | | |
| | 1640 | 1645 | 1650 |
| gtc gtc tct gca gac ttg cca aat gcc cac ggg ctg gct gtg gac tgg | | | 5467 |
| Val Val Ser Ala Asp Leu Pro Asn Ala His Gly Leu Ala Val Asp Trp | | | |
| | 1655 | 1660 | 1665 |
| gtc tcc cga aac ctg ttc tgg aca agc tat gac acc aat aag aag cag | | | 5515 |
| Val Ser Arg Asn Leu Phe Trp Thr Ser Tyr Asp Thr Asn Lys Lys Gln | | | |
| | 1670 | 1675 | 1680 |
| atc aat gtg gcc cgg ctg gat ggc tcc ttc aag aac gca gtg gtg cag | | | 5563 |
| Ile Asn Val Ala Arg Leu Asp Gly Ser Phe Lys Asn Ala Val Val Gln | | | |
| | 1685 | 1690 | 1695 |
| ggc ctg gag cag ccc cat ggc ctt gtc gtc cac cct ctg cgt ggg aag | | | 5611 |
| Gly Leu Glu Gln Pro His Gly Leu Val Val His Pro Leu Arg Gly Lys | | | |
| 1700 | 1705 | 1710 | 1715 |
| ctc tac tgg acc gat ggt gac aac atc agc atg gcc aac atg gat ggc | | | 5659 |
| Leu Tyr Trp Thr Asp Gly Asp Asn Ile Ser Met Ala Asn Met Asp Gly | | | |
| | 1720 | 1725 | 1730 |
| agc aat cgc acc ctg ctc ttc agt ggc cag aag ggc ccc gtg ggc ctg | | | 5707 |
| Ser Asn Arg Thr Leu Leu Phe Ser Gly Gln Lys Gly Pro Val Gly Leu | | | |
| | 1735 | 1740 | 1745 |
| gct att gac ttc cct gaa agc aaa ctc tac tgg atc agc tcc ggg aac | | | 5755 |
| Ala Ile Asp Phe Pro Glu Ser Lys Leu Tyr Trp Ile Ser Ser Gly Asn | | | |
| | 1750 | 1755 | 1760 |
| cat acc atc aac cgc tgc aac ctg gat ggg agt ggg ctg gag gtc atc | | | 5803 |
| His Thr Ile Asn Arg Cys Asn Leu Asp Gly Ser Gly Leu Glu Val Ile | | | |

| | | | |
|---|------|------|------|
| 1765 | 1770 | 1775 | |
| gat gcc atg cgg agc cag ctg ggc aag gcc acc gcc ctg gcc atc atg | | | 5851 |
| Asp Ala Met Arg Ser Gln Leu Gly Lys Ala Thr Ala Leu Ala Ile Met | | | |
| 1780 | 1785 | 1790 | 1795 |
| ggg gac aag ctg tgg tgg gct gat cag gtg tgc gaa aag atg ggc aca | | | 5899 |
| Gly Asp Lys Leu Trp Trp Ala Asp Gln Val Ser Glu Lys Met Gly Thr | | | |
| 1800 | 1805 | 1810 | |
| tgc agc aag gct gac ggc tgc ggc tcc gtg gtc ctt cgg aac agc acc | | | 5947 |
| Cys Ser Lys Ala Asp Gly Ser Gly Ser Val Val Leu Arg Asn Ser Thr | | | |
| 1815 | 1820 | 1825 | |
| acc ctg gtg atg cac atg aag gtc tat gac gag agc atc cag ctg gac | | | 5995 |
| Thr Leu Val Met His Met Lys Val Tyr Asp Glu Ser Ile Gln Leu Asp | | | |
| 1830 | 1835 | 1840 | |
| cat aag ggc acc aac ccc tgc agt gtc aac aac ggt gac tgc tcc cag | | | 6043 |
| His Lys Gly Thr Asn Pro Cys Ser Val Asn Asn Gly Asp Cys Ser Gln | | | |
| 1845 | 1850 | 1855 | |
| ctc tgc ctg ccc acg tca gag acg acc cgc tcc tgc atg tgc aca gcc | | | 6091 |
| Leu Cys Leu Pro Thr Ser Glu Thr Thr Arg Ser Cys Met Cys Thr Ala | | | |
| 1860 | 1865 | 1870 | 1875 |
| ggc tat agc ctc cgg agt ggc cag cag gcc tgc gag ggc gta ggt tcc | | | 6139 |
| Gly Tyr Ser Leu Arg Ser Gly Gln Gln Ala Cys Glu Gly Val Gly Ser | | | |
| 1880 | 1885 | 1890 | |
| ttt ctc ctg tac tct gtg cat gag gga atc agg gga att ccc ctg gat | | | 6187 |
| Phe Leu Leu Tyr Ser Val His Glu Gly Ile Arg Gly Ile Pro Leu Asp | | | |
| 1895 | 1900 | 1905 | |
| ccc aat gac aag tca gat gcc ctg gtc cca gtg tcc ggg acc tgc ctg | | | 6235 |
| Pro Asn Asp Lys Ser Asp Ala Leu Val Pro Val Ser Gly Thr Ser Leu | | | |
| 1910 | 1915 | 1920 | |
| gct gtc ggc atc gac ttc cac gct gaa aat gac acc atc tac tgg gtg | | | 6283 |
| Ala Val Gly Ile Asp Phe His Ala Glu Asn Asp Thr Ile Tyr Trp Val | | | |
| 1925 | 1930 | 1935 | |
| gac atg ggc ctg agc acg atc agc cgg gcc aag cgg gac cag acg tgg | | | 6331 |
| Asp Met Gly Leu Ser Thr Ile Ser Arg Ala Lys Arg Asp Gln Thr Trp | | | |
| 1940 | 1945 | 1950 | 1955 |
| cgt gaa gac gtg gtg acc aat ggc att ggc cgt gtg gag ggc att gca | | | 6379 |
| Arg Glu Asp Val Val Thr Asn Gly Ile Gly Arg Val Glu Gly Ile Ala | | | |
| 1960 | 1965 | 1970 | |
| gtg gac tgg atc gca ggc aac atc tac tgg aca gac cag ggc ttt gat | | | 6427 |
| Val Asp Trp Ile Ala Gly Asn Ile Tyr Trp Thr Asp Gln Gly Phe Asp | | | |
| 1975 | 1980 | 1985 | |
| gtc atc gag gtc gcc cgg ctc aat ggc tcc ttc cgc tac gtg gtg atc | | | 6475 |
| Val Ile Glu Val Ala Arg Leu Asn Gly Ser Phe Arg Tyr Val Val Ile | | | |
| 1990 | 1995 | 2000 | |
| tcc cag ggt cta gac aag ccc cgg gcc atc acc gtc cac ccg gag aaa | | | 6523 |
| Ser Gln Gly Leu Asp Lys Pro Arg Ala Ile Thr Val His Pro Glu Lys | | | |
| 2005 | 2010 | 2015 | |
| ggg tac ttg ttc tgg act gag tgg ggt cag tat ccg cgt att gag cgg | | | 6571 |
| Gly Tyr Leu Phe Trp Thr Glu Trp Gly Gln Tyr Pro Arg Ile Glu Arg | | | |

| 2020 | 2025 | 2030 | 2035 | | |
|--|------|------|------|------|------|
| tct cgg cta gat ggc acg gag cgt gtg gtg ctg gtc aac gtc agc atc Ser Arg Leu Asp Gly Thr Glu Arg Val Val Leu Val Asn Val Ser Ile | 2040 | 2045 | 2050 | 6619 | |
| agc tgg ccc aac ggc atc tca gtg gac tac cag gat ggg aag ctg tac Ser Trp Pro Asn Gly Ile Ser Val Asp Tyr Gln Asp Gly Lys Leu Tyr | 2055 | 2060 | 2065 | 6667 | |
| tgg tgc gat gca cgg aca gac aag att gaa cgg atc gac ctg gag aca Trp Cys Asp Ala Arg Thr Asp Lys Ile Glu Arg Ile Asp Leu Glu Thr | 2070 | 2075 | 2080 | 6715 | |
| ggt gag aac cgc gag gtg gtt ctg tcc agc aac aac atg gac atg ttt Gly Glu Asn Arg Glu Val Val Leu Ser Ser Asn Asn Met Asp Met Phe | 2085 | 2090 | 2095 | 6763 | |
| tca gtg tct gtg ttt gag gat ttc atc tac tgg agt gac agg act cat Ser Val Ser Val Phe Glu Asp Phe Ile Tyr Trp Ser Asp Arg Thr His | 2100 | 2105 | 2110 | 2115 | 6811 |
| gcc aac ggc tct atc aag cgc ggg agc aaa gac aat gcc aca gac tcc Ala Asn Gly Ser Ile Lys Arg Gly Ser Lys Asp Asn Ala Thr Asp Ser | 2120 | 2125 | 2130 | 6859 | |
| gtg ccc ctg cga acc ggc atc ggc gtc cag ctt aaa gac atc aaa gtc Val Pro Leu Arg Thr Gly Ile Gly Val Gln Leu Lys Asp Ile Lys Val | 2135 | 2140 | 2145 | 6907 | |
| ttc aac cgg gac cgg cag aaa ggc acc aac gtg tgc gcg gtg gcc aat Phe Asn Arg Asp Arg Gln Lys Gly Thr Asn Val Cys Ala Val Ala Asn | 2150 | 2155 | 2160 | 6955 | |
| ggc ggg tgc cag cag ctg tgc ctg tac cgg ggc cgt ggg cag cgg gcc Gly Gly Cys Gln Gln Leu Cys Leu Tyr Arg Gly Arg Gly Gln Arg Ala | 2165 | 2170 | 2175 | 7003 | |
| tgc gcc tgt gcc cac ggg atg ctg gct gaa gac gga gca tcg tgc cgc Cys Ala Cys Ala His Gly Met Leu Ala Glu Asp Gly Ala Ser Cys Arg | 2180 | 2185 | 2190 | 2195 | 7051 |
| gag tat gcc ggc tac ctg ctc tac tca gag cgc acc att ctc aag agt Glu Tyr Ala Gly Tyr Leu Leu Tyr Ser Glu Arg Thr Ile Leu Lys Ser | 2200 | 2205 | 2210 | 7099 | |
| atc cac ctg tcg gat gag cgc aac ctc aat gcg ccc gtg cag ccc ttc Ile His Leu Ser Asp Glu Arg Asn Leu Asn Ala Pro Val Gln Pro Phe | 2215 | 2220 | 2225 | 7147 | |
| gag gac cct gag cac atg aag aac gtc atc gcc ctg gcc ttt gac tac Glu Asp Pro Glu His Met Lys Asn Val Ile Ala Leu Ala Phe Asp Tyr | 2230 | 2235 | 2240 | 7195 | |
| cgg gca ggc acc tct ccg ggc acc ccc aat cgc atc ttc ttc agc gac Arg Ala Gly Thr Ser Pro Gly Thr Pro Asn Arg Ile Phe Phe Ser Asp | 2245 | 2250 | 2255 | 7243 | |
| atc cac ttt ggg aac atc caa cag atc aac gac gat ggc tcc agg agg Ile His Phe Gly Asn Ile Gln Gln Ile Asn Asp Asp Gly Ser Arg Arg | 2260 | 2265 | 2270 | 2275 | 7291 |
| atc acc att gtg gaa aac gtg ggc tcc gtg gaa ggc ctg gcc tat cac Ile Thr Ile Val Glu Asn Val Gly Ser Val Glu Gly Leu Ala Tyr His | | | | 7339 | |

| | 2280 | 2285 | 2290 | |
|---|------|------|------|------|
| cgt ggc tgg gac act ctc tat tgg aca agc tac acg aca tcc acc atc | | | | 7387 |
| Arg Gly Trp Asp Thr Leu Tyr Trp Thr Ser Tyr Thr Thr Ser Thr Ile | | | | |
| | 2295 | 2300 | 2305 | |
| acg cgc cac aca gtg gac cag acc cgc cca ggg gcc ttc gag cgt gag | | | | 7435 |
| Thr Arg His Thr Val Asp Gln Thr Arg Pro Gly Ala Phe Glu Arg Glu | | | | |
| | 2310 | 2315 | 2320 | |
| acc gtc atc act atg tct gga gat gac cac cca cgg gcc ttc gtt ttg | | | | 7483 |
| Thr Val Ile Thr Met Ser Gly Asp Asp His Pro Arg Ala Phe Val Leu | | | | |
| | 2325 | 2330 | 2335 | |
| gac gag tgc cag aac ctc atg ttc tgg acc aac tgg aat gag cag cat | | | | 7531 |
| Asp Glu Cys Gln Asn Leu Met Phe Trp Thr Asn Trp Asn Glu Gln His | | | | |
| 2340 | 2345 | 2350 | 2355 | |
| ccc agc atc atg cgg gcg gcg ctc tcg gga gcc aat gtc ctg acc ctt | | | | 7579 |
| Pro Ser Ile Met Arg Ala Ala Leu Ser Gly Ala Asn Val Leu Thr Leu | | | | |
| | 2360 | 2365 | 2370 | |
| atc gag aag gac atc cgt acc ccc aat ggc ctg gcc atc gac cac cgt | | | | 7627 |
| Ile Glu Lys Asp Ile Arg Thr Pro Asn Gly Leu Ala Ile Asp His Arg | | | | |
| | 2375 | 2380 | 2385 | |
| gcc gag aag ctc tac ttc tct gac gcc acc ctg gac aag atc gag cgg | | | | 7675 |
| Ala Glu Lys Leu Tyr Phe Ser Asp Ala Thr Leu Asp Lys Ile Glu Arg | | | | |
| | 2390 | 2395 | 2400 | |
| tgc gag tat gac ggc tcc cac cgc tat gtg atc cta aag tca gag cct | | | | 7723 |
| Cys Glu Tyr Asp Gly Ser His Arg Tyr Val Ile Leu Lys Ser Glu Pro | | | | |
| | 2405 | 2410 | 2415 | |
| gtc cac ccc ttc ggg ctg gcc gtg tat ggg gag cac att ttc tgg act | | | | 7771 |
| Val His Pro Phe Gly Leu Ala Val Tyr Gly Glu His Ile Phe Trp Thr | | | | |
| 2420 | 2425 | 2430 | 2435 | |
| gac tgg gtg cgg cgg gca gtg cag cgg gcc aac aag cac gtg ggc agc | | | | 7819 |
| Asp Trp Val Arg Arg Ala Val Gln Arg Ala Asn Lys His Val Gly Ser | | | | |
| | 2440 | 2445 | 2450 | |
| aac atg aag ctg ctg cgc gtg gac atc ccc cag cag ccc atg ggc atc | | | | 7867 |
| Asn Met Lys Leu Leu Arg Val Asp Ile Pro Gln Gln Pro Met Gly Ile | | | | |
| | 2455 | 2460 | 2465 | |
| atc gcc gtg gcc aac gac acc aac agc tgt gaa ctc tct cca tgc cga | | | | 7915 |
| Ile Ala Val Ala Asn Asp Thr Asn Ser Cys Glu Leu Ser Pro Cys Arg | | | | |
| | 2470 | 2475 | 2480 | |
| atc aac aac ggt ggc tgc cag gac ctg tgt ctg ctc act cac cag ggc | | | | 7963 |
| Ile Asn Asn Gly Gly Cys Gln Asp Leu Cys Leu Leu Thr His Gln Gly | | | | |
| | 2485 | 2490 | 2495 | |
| cat gtc aac tgc tca tgc cga ggg ggc cga atc ctc cag gat gac ctc | | | | 8011 |
| His Val Asn Cys Ser Cys Arg Gly Gly Arg Ile Leu Gln Asp Asp Leu | | | | |
| 2500 | 2505 | 2510 | 2515 | |
| acc tgc cga gcg gtg aat tcc tct tgc cga gca caa gat gag ttt gag | | | | 8059 |
| Thr Cys Arg Ala Val Asn Ser Ser Cys Arg Ala Gln Asp Glu Phe Glu | | | | |
| | 2520 | 2525 | 2530 | |
| tgt gcc aat ggc gag tgc atc aac ttc agc ctg acc tgc gac ggc gtc | | | | 8107 |
| Cys Ala Asn Gly Glu Cys Ile Asn Phe Ser Leu Thr Cys Asp Gly Val | | | | |

| 2535 | 2540 | 2545 | |
|---|------|------|------|
| ccc cac tgc aag gac aag tcc gat gag aag cca tcc tac tgc aac tcc Pro His Cys Lys Asp Lys Ser Asp Glu Lys Pro Ser Tyr Cys Asn Ser 2550 2555 2560 | | | 8155 |
| cgc cgc tgc aag aag act ttc cgg cag tgc agc aat ggg cgc tgt gtg Arg Arg Cys Lys Lys Thr Phe Arg Gln Cys Ser Asn Gly Arg Cys Val 2565 2570 2575 | | | 8203 |
| tcc aac atg ctg tgg tgc aac ggg gcc gac gac tgt ggg gat ggc tct Ser Asn Met Leu Trp Cys Asn Gly Ala Asp Asp Cys Gly Asp Gly Ser 2580 2585 2590 2595 | | | 8251 |
| gac gag atc cct tgc aac aag aca gcc tgt ggt gtg ggc gag ttc cgc Asp Glu Ile Pro Cys Asn Lys Thr Ala Cys Gly Val Gly Glu Phe Arg 2600 2605 2610 | | | 8299 |
| tgc cgg gac ggg acc tgc atc ggg aac tcc agc cgc tgc aac cag ttt Cys Arg Asp Gly Thr Cys Ile Gly Asn Ser Ser Arg Cys Asn Gln Phe 2615 2620 2625 | | | 8347 |
| gtg gat tgt gag gac gcc tca gat gag atg aac tgc agt gcc acc gac Val Asp Cys Glu Asp Ala Ser Asp Glu Met Asn Cys Ser Ala Thr Asp 2630 2635 2640 | | | 8395 |
| tgc agc agc tac ttc cgc ctg ggc gtg aag ggc gtg ctc ttc cag ccc Cys Ser Ser Tyr Phe Arg Leu Gly Val Lys Gly Val Leu Phe Gln Pro 2645 2650 2655 | | | 8443 |
| tgc gag cgg acc tca ctc tgc tac gca ccc agc tgg gtg tgt gat ggc Cys Glu Arg Thr Ser Leu Cys Tyr Ala Pro Ser Trp Val Cys Asp Gly 2660 2665 2670 2675 | | | 8491 |
| gcc aat gac tgt ggg gac tac agt gat gag cgc gac tgc cca ggt gtg Ala Asn Asp Cys Gly Asp Tyr Ser Asp Glu Arg Asp Cys Pro Gly Val 2680 2685 2690 | | | 8539 |
| aaa cgc ccc aga tgc cct ctg aat tac ttc gcc tgc cct agt ggg cgc Lys Arg Pro Arg Cys Pro Leu Asn Tyr Phe Ala Cys Pro Ser Gly Arg 2695 2700 2705 | | | 8587 |
| tgc atc ccc atg agc tgg acg tgt gac aaa gag gat gac tgt gaa cat Cys Ile Pro Met Ser Trp Thr Cys Asp Lys Glu Asp Asp Cys Glu His 2710 2715 2720 | | | 8635 |
| ggc gag gac gag acc cac tgc aac aag ttc tgc tca gag gcc cag ttt Gly Glu Asp Glu Thr His Cys Asn Lys Phe Cys Ser Glu Ala Gln Phe 2725 2730 2735 | | | 8683 |
| gag tgc cag aac cat cgc tgc atc tcc aag cag tgg ctg tgt gac ggc Glu Cys Gln Asn His Arg Cys Ile Ser Lys Gln Trp Leu Cys Asp Gly 2740 2745 2750 2755 | | | 8731 |
| agc gat gac tgt ggg gat ggc tca gac gag gct gct cac tgt gaa ggc Ser Asp Asp Cys Gly Asp Gly Ser Asp Glu Ala Ala His Cys Glu Gly 2760 2765 2770 | | | 8779 |
| aag acg tgc ggc ccc tcc tcc ttc tcc tgc cct ggc acc cac gtg tgc Lys Thr Cys Gly Pro Ser Ser Phe Ser Cys Pro Gly Thr His Val Cys 2775 2780 2785 | | | 8827 |
| gtc ccc gag cgc tgg ctc tgt gac ggt gac aaa gac tgt gct gat ggt Val Pro Glu Arg Trp Leu Cys Asp Gly Asp Lys Asp Cys Ala Asp Gly 2790 2795 2800 | | | 8875 |

| 2790 | 2795 | 2800 | |
|--|------|------|------|
| gca gac gag agc atc gca gct ggt tgc ttg tac aac agc act tgt gac Ala Asp Glu Ser Ile Ala Ala Gly Cys Leu Tyr Asn Ser Thr Cys Asp 2805 | 2810 | 2815 | 8923 |
| gac cgt gag ttc atg tgc cag aac cgc cag tgc atc ccc aag cac ttc Asp Arg Glu Phe Met Cys Gln Asn Arg Gln Cys Ile Pro Lys His Phe 2820 | 2825 | 2830 | 8971 |
| gtg tgt gac cac gac cgt gac tgt gca gat ggc tct gat gag tcc ccc Val Cys Asp His Asp Arg Asp Cys Ala Asp Gly Ser Asp Glu Ser Pro 2840 | 2845 | 2850 | 9019 |
| gag tgt gag tac ccg acc tgc ggc ccc agt gag ttc cgc tgt gcc aat Glu Cys Glu Tyr Pro Thr Cys Gly Pro Ser Glu Phe Arg Cys Ala Asn 2855 | 2860 | 2865 | 9067 |
| ggg cgc tgt ctg agc tcc cgc cag tgg gag tgt gat ggc gag aat gac Gly Arg Cys Leu Ser Ser Arg Gln Trp Glu Cys Asp Gly Glu Asn Asp 2870 | 2875 | 2880 | 9115 |
| tgc cac gac cag agt gac gag gct ccc aag aac cca cac tgc acc agc Cys His Asp Gln Ser Asp Glu Ala Pro Lys Asn Pro His Cys Thr Ser 2885 | 2890 | 2895 | 9163 |
| cca gag cac aag tgc aat gcc tcg tca cag ttc ctg tgc agc agt ggg Pro Glu His Lys Cys Asn Ala Ser Ser Gln Phe Leu Cys Ser Ser Gly 2900 | 2905 | 2910 | 9211 |
| cgc tgt gtg gct gag gca ctg ctc tgc aac ggc cag gat gac tgt ggc Arg Cys Val Ala Glu Ala Leu Leu Cys Asn Gly Gln Asp Asp Cys Gly 2920 | 2925 | 2930 | 9259 |
| gac agc tcg gac gag cgt ggc tgc cac atc aat gag tgt ctc agc cgc Asp Ser Ser Asp Glu Arg Gly Cys His Ile Asn Glu Cys Leu Ser Arg 2935 | 2940 | 2945 | 9307 |
| aag ctc agt ggc tgc agc cag gac tgt gag gac ctc aag atc ggc ttc Lys Leu Ser Gly Cys Ser Gln Asp Cys Glu Asp Leu Lys Ile Gly Phe 2950 | 2955 | 2960 | 9355 |
| aag tgc cgc tgt cgc cct ggc ttc cgg ctg aag gac gac ggc cgg acg Lys Cys Arg Cys Arg Pro Gly Phe Arg Leu Lys Asp Asp Gly Arg Thr 2965 | 2970 | 2975 | 9403 |
| tgt gct gat gtg gac gag tgc agc acc acc ttc ccc tgc agc cag cgc Cys Ala Asp Val Asp Glu Cys Ser Thr Thr Phe Pro Cys Ser Gln Arg 2980 | 2985 | 2990 | 9451 |
| tgc atc aac acc cat ggc agc tat aag tgt ctg tgt gtg gag ggc tat Cys Ile Asn Thr His Gly Ser Tyr Lys Cys Leu Cys Val Glu Gly Tyr 3000 | 3005 | 3010 | 9499 |
| gca ccc cgc ggc ggc gac ccc cac agc tgc aag gct gtg act gac gag Ala Pro Arg Gly Gly Asp Pro His Ser Cys Lys Ala Val Thr Asp Glu 3015 | 3020 | 3025 | 9547 |
| gaa ccg ttt ctg atc ttc gcc aac cgg tac tac ctg cgc aag ctc aac Glu Pro Phe Leu Ile Phe Ala Asn Arg Tyr Tyr Leu Arg Lys Leu Asn 3030 | 3035 | 3040 | 9595 |
| ctg gac ggg tcc aac tac acg tta ctt aag cag ggc ctg aac aac gcc Leu Asp Gly Ser Asn Tyr Thr Leu Leu Lys Gln Gly Leu Asn Asn Ala | | | 9643 |

| 3045 | 3050 | 3055 | |
|--|------|------|------------|
| gtt gcc ttg gat ttt gac tac cga gag cag atg atc tac tgg aca gat Val Ala Leu Asp Phe Asp Tyr Arg Glu Gln Met Ile Tyr Trp Thr Asp 3060 | 3065 | 3070 | 3075 9691 |
| gtg acc acc cag ggc agc atg atc cga agg atg cac ctt aac ggg agc Val Thr Thr Gln Gly Ser Met Ile Arg Arg Met His Leu Asn Gly Ser 3080 | 3085 | | 3090 9739 |
| aat gtg cag gtc cta cac cgt aca ggc ctc agc aac ccc gat ggg ctg Asn Val Gln Val Leu His Arg Thr Gly Leu Ser Asn Pro Asp Gly Leu 3095 | 3100 | | 3105 9787 |
| gct gtg gac tgg gtg ggt ggc aac ctg tac tgg tgc gac aaa ggc cgg Ala Val Asp Trp Val Gly Gly Asn Leu Tyr Trp Cys Asp Lys Gly Arg 3110 | 3115 | | 3120 9835 |
| gac acc atc gag gtg tcc aag ctc aat ggg gcc tat cgg acg gtg ctg Asp Thr Ile Glu Val Ser Lys Leu Asn Gly Ala Tyr Arg Thr Val Leu 3125 | 3130 | | 3135 9883 |
| gtc agc tct ggc ctc cgt gag ccc agg gct ctg gtg gtg gat gtg cag Val Ser Ser Gly Leu Arg Glu Pro Arg Ala Leu Val Val Asp Val Gln 3140 | 3145 | 3150 | 3155 9931 |
| aat ggg tac ctg tac tgg aca gac tgg ggt gac cat tca ctg atc ggc Asn Gly Tyr Leu Tyr Trp Thr Asp Trp Gly Asp His Ser Leu Ile Gly 3160 | 3165 | | 3170 9979 |
| cgc atc ggc atg gat ggg tcc agc cgc agc gtc atc gtg gac acc aag Arg Ile Gly Met Asp Gly Ser Ser Arg Ser Val Ile Val Asp Thr Lys 3175 | 3180 | | 3185 10027 |
| atc aca tgg ccc aat ggc ctg acg ctg gac tat gtc act gag cgc atc Ile Thr Trp Pro Asn Gly Leu Thr Leu Asp Tyr Val Thr Glu Arg Ile 3190 | 3195 | | 3200 10075 |
| tac tgg gcc gac gcc cgc gag gac tac att gaa ttt gcc agc ctg gat Tyr Trp Ala Asp Ala Arg Glu Asp Tyr Ile Glu Phe Ala Ser Leu Asp 3205 | 3210 | | 3215 10123 |
| ggc tcc aat cgc cac gtt gtg ctg agc cag gac atc ccg cac atc ttt Gly Ser Asn Arg His Val Val Leu Ser Gln Asp Ile Pro His Ile Phe 3220 | 3225 | 3230 | 3235 10171 |
| gca ctg acc ctg ttt gag gac tac gtc tac tgg acc gac tgg gaa aca Ala Leu Thr Leu Phe Glu Asp Tyr Val Tyr Trp Thr Asp Trp Glu Thr 3240 | 3245 | | 3250 10219 |
| aag tcc att aac cga gcc cac aag acc aca ggc acc aac aaa acg ctc Lys Ser Ile Asn Arg Ala His Lys Thr Thr Gly Thr Asn Lys Thr Leu 3255 | 3260 | | 3265 10267 |
| ctc atc agc acg ctg cac cgg ccc atg gac ctg cat gtc ttc cat gcc Leu Ile Ser Thr Leu His Arg Pro Met Asp Leu His Val Phe His Ala 3270 | 3275 | | 3280 10315 |
| ctg cgc cag cca gac gtg ccc aat cac ccc tgc aag gtc aac aat ggt Leu Arg Gln Pro Asp Val Pro Asn His Pro Cys Lys Val Asn Asn Gly 3285 | 3290 | | 3295 10363 |
| ggc tgc agc aac ctg tgc ctg ctg tcc ccc ggg gga ggg cac aaa tgt Gly Cys Ser Asn Leu Cys Leu Leu Ser Pro Gly Gly Gly His Lys Cys 3300 | | | 3305 10411 |

| 3300 | 3305 | 3310 | 3315 | |
|---|------|------|------|-------|
| gcc tgc ccc acc aac ttc tac ctg ggc agc gat ggg cgc acc tgt gtg | | | | 10459 |
| Ala Cys Pro Thr Asn Phe Tyr Leu Gly Ser Asp Gly Arg Thr Cys Val | | | | |
| 3320 | | 3325 | 3330 | |
| tcc aac tgc acg gct agc cag ttt gta tgc aag aac gac aag tgc atc | | | | 10507 |
| Ser Asn Cys Thr Ala Ser Gln Phe Val Cys Lys Asn Asp Lys Cys Ile | | | | |
| 3335 | 3340 | | 3345 | |
| ccc ttc tgg tgg aag tgt gac acc gag gac gac tgc ggg gac cac tca | | | | 10555 |
| Pro Phe Trp Trp Lys Cys Asp Thr Glu Asp Asp Cys Gly Asp His Ser | | | | |
| 3350 | 3355 | | 3360 | |
| gac gag ccc ccg gac tgc cct gag ttc aag tgc cgg ccc gga cag ttc | | | | 10603 |
| Asp Glu Pro Pro Asp Cys Pro Glu Phe Lys Cys Arg Pro Gly Gln Phe | | | | |
| 3365 | 3370 | | 3375 | |
| cag tgc tcc aca ggt atc tgc aca aac cct gcc ttc atc tgc gat ggc | | | | 10651 |
| Gln Cys Ser Thr Gly Ile Cys Thr Asn Pro Ala Phe Ile Cys Asp Gly | | | | |
| 3380 | 3385 | 3390 | 3395 | |
| gac aat gac tgc cag gac aac agt gac gag gcc aac tgt gac atc cac | | | | 10699 |
| Asp Asn Asp Cys Gln Asp Asn Ser Asp Glu Ala Asn Cys Asp Ile His | | | | |
| 3400 | 3405 | | 3410 | |
| gtc tgc ttg ccc agt cag ttc aaa tgc acc aac acc aac cgc tgt att | | | | 10747 |
| Val Cys Leu Pro Ser Gln Phe Lys Cys Thr Asn Thr Asn Arg Cys Ile | | | | |
| 3415 | 3420 | | 3425 | |
| ccc ggc atc ttc cgc tgc aat ggg cag gac aac tgc gga gat ggg gag | | | | 10795 |
| Pro Gly Ile Phe Arg Cys Asn Gly Gln Asp Asn Cys Gly Asp Gly Glu | | | | |
| 3430 | 3435 | | 3440 | |
| gat gag agg gac tgc ccc gag gtg acc tgc gcc ccc aac cag ttc cag | | | | 10843 |
| Asp Glu Arg Asp Cys Pro Glu Val Thr Cys Ala Pro Asn Gln Phe Gln | | | | |
| 3445 | 3450 | | 3455 | |
| tgc tcc att acc aaa cgg tgc atc ccc cgg gtc tgg gtc tgc gac cgg | | | | 10891 |
| Cys Ser Ile Thr Lys Arg Cys Ile Pro Arg Val Trp Val Cys Asp Arg | | | | |
| 3460 | 3465 | 3470 | 3475 | |
| gac aat gac tgt gtg gat ggc agt gat gag ccc gcc aac tgc acc cag | | | | 10939 |
| Asp Asn Asp Cys Val Asp Gly Ser Asp Glu Pro Ala Asn Cys Thr Gln | | | | |
| 3480 | 3485 | | 3490 | |
| atg acc tgt ggt gtg gac gag ttc cgc tgc aag gat tcg ggc cgc tgc | | | | 10987 |
| Met Thr Cys Gly Val Asp Glu Phe Arg Cys Lys Asp Ser Gly Arg Cys | | | | |
| 3495 | 3500 | | 3505 | |
| atc cca gcg cgt tgg aag tgt gac gga gag gat gac tgt ggg gat ggc | | | | 11035 |
| Ile Pro Ala Arg Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Gly | | | | |
| 3510 | 3515 | | 3520 | |
| tcg gat gag ccc aag gaa gag tgt gat gaa cgc acc tgt gag cca tac | | | | 11083 |
| Ser Asp Glu Pro Lys Glu Glu Cys Asp Glu Arg Thr Cys Glu Pro Tyr | | | | |
| 3525 | 3530 | | 3535 | |
| cag ttc cgc tgc aag aac aac cgc tgc gtg ccc ggc cgc tgg cag tgc | | | | 11131 |
| Gln Phe Arg Cys Lys Asn Asn Arg Cys Val Pro Gly Arg Trp Gln Cys | | | | |
| 3540 | 3545 | 3550 | 3555 | |
| gac tac gac aac gat tgc ggt gac aac tcc gat gaa gag agc tgc acc | | | | 11179 |
| Asp Tyr Asp Asn Asp Cys Gly Asp Asn Ser Asp Glu Glu Ser Cys Thr | | | | |

| | 3560 | 3565 | 3570 | |
|---|------|------|------|-------|
| cct cgg ccc tgc tcc gag agt gag ttc tcc tgt gcc aac ggc cgc tgc | | | | 11227 |
| Pro Arg Pro Cys Ser Glu Ser Glu Phe Ser Cys Ala Asn Gly Arg Cys | | | | |
| | 3575 | 3580 | 3585 | |
| atc gcg ggg cgc tgg aaa tgc gat gga gac cac gac tgc gcg gac ggc | | | | 11275 |
| Ile Ala Gly Arg Trp Lys Cys Asp Gly Asp His Asp Cys Ala Asp Gly | | | | |
| | 3590 | 3595 | 3600 | |
| tcg gac gag aaa gac tgc acc ccc cgc tgt gac atg gac cag ttc cag | | | | 11323 |
| Ser Asp Glu Lys Asp Cys Thr Pro Arg Cys Asp Met Asp Gln Phe Gln | | | | |
| | 3605 | 3610 | 3615 | |
| tgc aag agc ggc cac tgc atc ccc ctg cgc tgg cgc tgt gac gca gac | | | | 11371 |
| Cys Lys Ser Gly His Cys Ile Pro Leu Arg Trp Arg Cys Asp Ala Asp | | | | |
| | 3620 | 3625 | 3630 | 3635 |
| gcc gac tgc atg gac ggc agc gac gag gag gcc tgc ggc act ggc gtg | | | | 11419 |
| Ala Asp Cys Met Asp Gly Ser Asp Glu Glu Ala Cys Gly Thr Gly Val | | | | |
| | 3640 | 3645 | 3650 | |
| cgg acc tgc ccc ctg gac gag ttc cag tgc aac aac acc ttg tgc aag | | | | 11467 |
| Arg Thr Cys Pro Leu Asp Glu Phe Gln Cys Asn Asn Thr Leu Cys Lys | | | | |
| | 3655 | 3660 | 3665 | |
| cgg ctg gcc tgg aag tgc gat ggc gag gat gac tgt ggg gac aac tca | | | | 11515 |
| Pro Leu Ala Trp Lys Cys Asp Gly Glu Asp Asp Cys Gly Asp Asn Ser | | | | |
| | 3670 | 3675 | 3680 | |
| gat gag aac ccc gag gag tgt gcc cgg ttc gtg tgc cct ccc aac cgg | | | | 11563 |
| Asp Glu Asn Pro Glu Glu Cys Ala Arg Phe Val Cys Pro Pro Asn Arg | | | | |
| | 3685 | 3690 | 3695 | |
| ccc ttc cgt tgc aag aat gac cgc gtc tgt ctg tgg atc ggg cgc caa | | | | 11611 |
| Pro Phe Arg Cys Lys Asn Asp Arg Val Cys Leu Trp Ile Gly Arg Gln | | | | |
| | 3700 | 3705 | 3710 | 3715 |
| tgc gat ggc acg gac aac tgt ggg gat ggg act gat gaa gag gac tgt | | | | 11659 |
| Cys Asp Gly Thr Asp Asn Cys Gly Asp Gly Thr Asp Glu Glu Asp Cys | | | | |
| | 3720 | 3725 | 3730 | |
| gag ccc ccc aca gcc cac acc acc cac tgc aaa gac aag aag gag ttt | | | | 11707 |
| Glu Pro Pro Thr Ala His Thr Thr His Cys Lys Asp Lys Lys Glu Phe | | | | |
| | 3735 | 3740 | 3745 | |
| ctg tgc cgg aac cag cgc tgc ctc tcc tcc tcc ctg cgc tgc aac atg | | | | 11755 |
| Leu Cys Arg Asn Gln Arg Cys Leu Ser Ser Ser Leu Arg Cys Asn Met | | | | |
| | 3750 | 3755 | 3760 | |
| ttc gat gac tgc ggg gac ggc tct gac gag gag gac tgc agc atc gac | | | | 11803 |
| Phe Asp Asp Cys Gly Asp Gly Ser Asp Glu Glu Asp Cys Ser Ile Asp | | | | |
| | 3765 | 3770 | 3775 | |
| ccc aag ctg acc agc tgc gcc acc aat gcc agc atc tgt ggg gac gag | | | | 11851 |
| Pro Lys Leu Thr Ser Cys Ala Thr Asn Ala Ser Ile Cys Gly Asp Glu | | | | |
| | 3780 | 3785 | 3790 | 3795 |
| gca cgc tgc gtg cgc acc gag aaa gcg gcc tac tgt gcc tgc cgc tcg | | | | 11899 |
| Ala Arg Cys Val Arg Thr Glu Lys Ala Ala Tyr Cys Ala Cys Arg Ser | | | | |
| | 3800 | 3805 | 3810 | |
| ggc ttc cac acc gtg ccc ggc cag ccc gga tgc caa gac atc aac gag | | | | 11947 |
| Gly Phe His Thr Val Pro Gly Gln Pro Gly Cys Gln Asp Ile Asn Glu | | | | |

| 3815 | 3820 | 3825 | |
|---|------|------|-------|
| tgc ctg cgc ttc ggc acc tgc tcc cag ctc tgc aac aac acc aag ggc Cys Leu Arg Phe Gly Thr Cys Ser Gln Leu Cys Asn Asn Thr Lys Gly 3830 3835 3840 | | | 11995 |
| ggc cac ctc tgc agc tgc gct cgg aac ttc atg aag acg cac aac acc Gly His Leu Cys Ser Cys Ala Arg Asn Phe Met Lys Thr His Asn Thr 3845 3850 3855 | | | 12043 |
| tgc aag gcc gaa ggc tct gag tac cag gtc ctg tac atc gct gat gac Cys Lys Ala Glu Gly Ser Glu Tyr Gln Val Leu Tyr Ile Ala Asp Asp 3860 3865 3870 3875 | | | 12091 |
| aat gag atc cgc agc ctg ttc ccc ggc cac ccc cat tcg gct tac gag Asn Glu Ile Arg Ser Leu Phe Pro Gly His Pro His Ser Ala Tyr Glu 3880 3885 3890 | | | 12139 |
| cag gca ttc cag ggt gac gag agt gtc cgc att gat gct atg gat gtc Gln Ala Phe Gln Gly Asp Glu Ser Val Arg Ile Asp Ala Met Asp Val 3895 3900 3905 | | | 12187 |
| cat gtc aag gct ggc cgt gtc tat tgg acc aac tgg cac acg ggc acc His Val Lys Ala Gly Arg Val Tyr Trp Thr Asn Trp His Thr Gly Thr 3910 3915 3920 | | | 12235 |
| atc tcc tac cgc agc ctg cca cct gct gcg cct cct acc act tcc aac Ile Ser Tyr Arg Ser Leu Pro Pro Ala Ala Pro Pro Thr Thr Ser Asn 3925 3930 3935 | | | 12283 |
| cgc cac cgg cga cag att gac cgg ggt gtc acc cac ctc aac att tca Arg His Arg Arg Gln Ile Asp Arg Gly Val Thr His Leu Asn Ile Ser 3940 3945 3950 3955 | | | 12331 |
| ggg ctg aag atg ccc aga ggc atc gcc atc gac tgg gtg gcc gga aac Gly Leu Lys Met Pro Arg Gly Ile Ala Ile Asp Trp Val Ala Gly Asn 3960 3965 3970 | | | 12379 |
| gtg tac tgg acc gac tcg ggc cga gat gtg att gag gtg gcg cag atg Val Tyr Trp Thr Asp Ser Gly Arg Asp Val Ile Glu Val Ala Gln Met 3975 3980 3985 | | | 12427 |
| aag ggc gag aac cgc aag acg ctc atc tcg ggc atg att gac gag ccc Lys Gly Glu Asn Arg Lys Thr Leu Ile Ser Gly Met Ile Asp Glu Pro 3990 3995 4000 | | | 12475 |
| cac gcc att gtg gtg gac cca ctg agg ggg acc atg tac tgg tca gac His Ala Ile Val Val Asp Pro Leu Arg Gly Thr Met Tyr Trp Ser Asp 4005 4010 4015 | | | 12523 |
| tgg ggc aac cac ccc aag att gag acg gca gcg atg gat ggg acg ctt Trp Gly Asn His Pro Lys Ile Glu Thr Ala Ala Met Asp Gly Thr Leu 4020 4025 4030 4035 | | | 12571 |
| cgg gag aca ctg gtg cag gac aac att cag tgg ccc aca ggc ctg gcc Arg Glu Thr Leu Val Gln Asp Asn Ile Gln Trp Pro Thr Gly Leu Ala 4040 4045 4050 | | | 12619 |
| gtg gat tat cac aat gag cgg ctg tac tgg gca gac gcc aag ctt tca Val Asp Tyr His Asn Glu Arg Leu Tyr Trp Ala Asp Ala Lys Leu Ser 4055 4060 4065 | | | 12667 |
| gtc atc ggc agc atc cgg ctc aat ggc acg gac ccc att gtg gct gct Val Ile Gly Ser Ile Arg Leu Asn Gly Thr Asp Pro Ile Val Ala Ala 4070 4075 4080 4085 | | | 12715 |

| 4070 | 4075 | 4080 | |
|--|------|------|-------|
| gac agc aaa cga ggc cta agt cac ccc ttc agc atc gac gtc ttt gag Asp Ser Lys Arg Gly Leu Ser His Pro Phe Ser Ile Asp Val Phe Glu 4085 | 4090 | 4095 | 12763 |
| gat tac atc tat ggt gtc acc tac atc aat aat cgt gtc ttc aag atc Asp Tyr Ile Tyr Gly Val Thr Tyr Ile Asn Asn Arg Val Phe Lys Ile 4100 | 4105 | 4110 | 12811 |
| cat aag ttt ggc cac agc ccc ttg gtc aac ctg aca ggg ggc ctg agc His Lys Phe Gly His Ser Pro Leu Val Asn Leu Thr Gly Gly Leu Ser 4120 | 4125 | 4130 | 12859 |
| cac gcc tct gac gtg gtc ctt tac cat cag cac aag cag ccc gaa gtg His Ala Ser Asp Val Val Leu Tyr His Gln His Lys Gln Pro Glu Val 4135 | 4140 | 4145 | 12907 |
| acc aac cca tgt gac cgc aag aaa tgc gag tgg ctc tgc ctg ctg agc Thr Asn Pro Cys Asp Arg Lys Lys Cys Glu Trp Leu Cys Leu Leu Ser 4150 | 4155 | 4160 | 12955 |
| ccc agt ggg cct gtc tgc acc tgt ccc aat ggg aag cgg ctg gac aac Pro Ser Gly Pro Val Cys Thr Cys Pro Asn Gly Lys Arg Leu Asp Asn 4165 | 4170 | 4175 | 13003 |
| ggc aca tgc gtg cct gtg ccc tct cca acg ccc ccc cca gat gct ccc Gly Thr Cys Val Pro Val Pro Ser Pro Thr Pro Pro Pro Asp Ala Pro 4180 | 4185 | 4190 | 13051 |
| cgg cct gga acc tgt aac ctg cag tgc ttc aac ggt ggc agc tgt ttc Arg Pro Gly Thr Cys Asn Leu Gln Cys Phe Asn Gly Gly Ser Cys Phe 4200 | 4205 | 4210 | 13099 |
| ctc aat gca cgg agg cag ccc aag tgc cgc tgc caa ccc cgc tac acg Leu Asn Ala Arg Arg Gln Pro Lys Cys Arg Cys Gln Pro Arg Tyr Thr 4215 | 4220 | 4225 | 13147 |
| ggt gac aag tgt gaa ctg gac cag tgc tgg gag cac tgt cgc aat ggg Gly Asp Lys Cys Glu Leu Asp Gln Cys Trp Glu His Cys Arg Asn Gly 4230 | 4235 | 4240 | 13195 |
| ggc acc tgt gct gcc tcc ccc tct ggc atg ccc acg tgc cgg tgc ccc Gly Thr Cys Ala Ala Ser Pro Ser Gly Met Pro Thr Cys Arg Cys Pro 4245 | 4250 | 4255 | 13243 |
| acg ggc ttc acg ggc ccc aaa tgc acc cag cag gtg tgt gcg ggc tac Thr Gly Phe Thr Gly Pro Lys Cys Thr Gln Gln Val Cys Ala Gly Tyr 4260 | 4265 | 4270 | 13291 |
| tgt gcc aac aac agc acc tgc act gtc aac cag ggc aac cag ccc cag Cys Ala Asn Asn Ser Thr Cys Thr Val Asn Gln Gly Asn Gln Pro Gln 4280 | 4285 | 4290 | 13339 |
| tgc cga tgc cta ccc ggc ttc ctg ggc gac cgc tgc cag tac cgg cag Cys Arg Cys Leu Pro Gly Phe Leu Gly Asp Arg Cys Gln Tyr Arg Gln 4295 | 4300 | 4305 | 13387 |
| tgc tct ggc tac tgt gag aac ttt ggc aca tgc cag atg gct gct gat Cys Ser Gly Tyr Cys Glu Asn Phe Gly Thr Cys Gln Met Ala Ala Asp 4310 | 4315 | 4320 | 13435 |
| ggc tcc cga caa tgc cgc tgc act gcc tac ttt gag gga tgc agg tgt Gly Ser Arg Gln Cys Arg Cys Thr Ala Tyr Phe Glu Gly Ser Arg Cys 4325 | | | 13483 |

| | | | |
|---|------|------|-------|
| 4325 | 4330 | 4335 | |
| gag gtg aac aag tgc agc cgc tgt ctc gaa ggg gcc tgt gtg gtc aac | | | 13531 |
| Glu Val Asn Lys Cys Ser Arg Cys Leu Glu Gly Ala Cys Val Val Asn | | | |
| 4340 | 4345 | 4350 | 4355 |
| aag cag agt ggg gat gtc acc tgc aac tgc acg gat ggc cgg gtg gcc | | | 13579 |
| Lys Gln Ser Gly Asp Val Thr Cys Asn Cys Thr Asp Gly Arg Val Ala | | | |
| | 4360 | 4365 | 4370 |
| ccc agc tgt ctg acc tgc gtc ggc cac tgc agc aat ggc ggc tcc tgt | | | 13627 |
| Pro Ser Cys Leu Thr Cys Val Gly His Cys Ser Asn Gly Gly Ser Cys | | | |
| | 4375 | 4380 | 4385 |
| acc atg aac agc aaa atg atg cct gag tgc cag tgc cca ccc cac atg | | | 13675 |
| Thr Met Asn Ser Lys Met Met Pro Glu Cys Gln Cys Pro Pro His Met | | | |
| | 4390 | 4395 | 4400 |
| aca ggg ccc cgg tgt gag gag cac gtc ttc agc cag cag cag cca gga | | | 13723 |
| Thr Gly Pro Arg Cys Glu Glu His Val Phe Ser Gln Gln Gln Pro Gly | | | |
| | 4405 | 4410 | 4415 |
| cat ata gcc tcc atc cta atc cct ctg ctg ttg ctg ctg ctg ctg gtt | | | 13771 |
| His Ile Ala Ser Ile Leu Ile Pro Leu Leu Leu Leu Leu Leu Val | | | |
| 4420 | 4425 | 4430 | 4435 |
| ctg gtg gcc gga gtg gta ttc tgg tat aag cgg cga gtc caa ggg gct | | | 13819 |
| Leu Val Ala Gly Val Val Phe Trp Tyr Lys Arg Arg Val Gln Gly Ala | | | |
| | 4440 | 4445 | 4450 |
| aag ggc ttc cag cac caa cgg atg acc aac ggg gcc atg aac gtg gag | | | 13867 |
| Lys Gly Phe Gln His Gln Arg Met Thr Asn Gly Ala Met Asn Val Glu | | | |
| | 4455 | 4460 | 4465 |
| att gga aac ccc acc tac aag atg tac gaa ggc gga gag cct gat gat | | | 13915 |
| Ile Gly Asn Pro Thr Tyr Lys Met Tyr Glu Gly Gly Glu Pro Asp Asp | | | |
| | 4470 | 4475 | 4480 |
| gtg gga ggc cta ctg gac gct gac ttt gcc ctg gac cct gac aag ccc | | | 13963 |
| Val Gly Gly Leu Leu Asp Ala Asp Phe Ala Leu Asp Pro Asp Lys Pro | | | |
| | 4485 | 4490 | 4495 |
| acc aac ttc acc aac ccc gtg tat gcc aca ctc tac atg ggg ggc cat | | | 14011 |
| Thr Asn Phe Thr Asn Pro Val Tyr Ala Thr Leu Tyr Met Gly Gly His | | | |
| 4500 | 4505 | 4510 | 4515 |
| ggc agt cgc cac tcc ctg gcc agc acg gac gag aag cga gaa ctc ctg | | | 14059 |
| Gly Ser Arg His Ser Leu Ala Ser Thr Asp Glu Lys Arg Glu Leu Leu | | | |
| | 4520 | 4525 | 4530 |
| ggc cgg ggc cct gag gac gag ata ggg gac ccc ttg gca tag ggccctg | | | 14108 |
| Gly Arg Gly Pro Glu Asp Glu Ile Gly Asp Pro Leu Ala * | | | |
| | 4535 | 4540 | 4545 |
| ccccgtcgga ctgccccag aaagcctcct gccccctgcc ggtgaagtcc ttcagtgagc | | | 14168 |
| ccctccccag ccagcccttc cctggccccg ccggatgtat aaatgtaaaa atgaaggaat | | | 14228 |
| tacattttat atgtgagcga gcaagccggc aagcgagcac agtattattt ctccatcccc | | | 14288 |
| tccttgctg ctctttggca ccccatgct gccttcaggg agacaggcag ggagggcttg | | | 14348 |
| gggctgcacc tcctaccctc ccaccagaac gcacccact gggagagctg gtggtgcagc | | | 14408 |

cttccccctcc ctgtataaga cacttttgcca aggctctccc ctctcgcccc atccctgctt 14468
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 aaaaaaaaaa a 14899

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 <213> Homo sapiens

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 tttttttttt tggtttccgg ttctgtcacc tccaggetga gccgggctgg cggaagaggc 180
 acgtgcgctg ctga atg gag ctg gtc gct ggt tgc tac gag cag gtc ctc 230
 Met Glu Leu Val Ala Gly Cys Tyr Glu Gln Val Leu
 1 5 10
 ttt ggg ttc gct gta cac ccg gag ccc gag gct tgc ggc gac cac gag 278
 Phe Gly Phe Ala Val His Pro Glu Pro Glu Ala Cys Gly Asp His Glu
 15 20 25
 caa tgg act ctt gtg gct gac ttc act cac cat gct cac act gcc tcc 326
 Gln Trp Thr Leu Val Ala Asp Phe Thr His His Ala His Thr Ala Ser
 30 35 40
 ttg tca gca gta gct gta aat agt cgt ttt gtg gtc act ggg agc aaa 374
 Leu Ser Ala Val Ala Val Asn Ser Arg Phe Val Val Thr Gly Ser Lys
 45 50 55 60
 gat gaa aca att cac att tat gac atg aaa aag aag att gag cat ggg 422
 Asp Glu Thr Ile His Ile Tyr Asp Met Lys Lys Lys Ile Glu His Gly
 65 70 75
 gct cta gtg cat cac agt ggt aca ata act tgc ctg aaa ttc tat ggc 470
 Ala Leu Val His His Ser Gly Thr Ile Thr Cys Leu Lys Phe Tyr Gly
 80 85 90
 aac agg cat tta atc agt gga gcg gaa gat gga ctc atc tgt atc tgg 518
 Asn Arg His Leu Ile Ser Gly Ala Glu Asp Gly Leu Ile Cys Ile Trp
 95 100 105

| | |
|---|------|
| gat gca aag aaa tgg gaa tgc ctg aag tca att aaa gct cac aaa gga Asp Ala Lys Lys Trp Glu Cys Leu Lys Ser Ile Lys Ala His Lys Gly 110 115 120 | 566 |
| cag gtg acc ttc ctt tct att cac cca tct ggc aag ttg gcc ctg tcg Gln Val Thr Phe Leu Ser Ile His Pro Ser Gly Lys Leu Ala Leu Ser 125 130 135 140 | 614 |
| gtt ggt aca gat aaa act tta aga acg tgg aat ctt gta gaa gga aga Val Gly Thr Asp Lys Thr Leu Arg Thr Trp Asn Leu Val Glu Gly Arg 145 150 155 | 662 |
| tca gca ttc ata aaa aat ata aaa caa aat gct cac ata gta gaa tgg Ser Ala Phe Ile Lys Asn Ile Lys Gln Asn Ala His Ile Val Glu Trp 160 165 170 | 710 |
| tcc cca aga gga gag cag tat gta gtt atc ata cag aat aaa ata gac Ser Pro Arg Gly Glu Gln Tyr Val Val Ile Ile Gln Asn Lys Ile Asp 175 180 185 | 758 |
| atc tat cag ctt gac act gca tcc att agt ggc acc atc aca aat gaa Ile Tyr Gln Leu Asp Thr Ala Ser Ile Ser Gly Thr Ile Thr Asn Glu 190 195 200 | 806 |
| aag aga att tcc tct gtt aaa ttt ctt tca gag tct gtc ctt gca gtg Lys Arg Ile Ser Ser Val Lys Phe Leu Ser Glu Ser Val Leu Ala Val 205 210 215 220 | 854 |
| gct gga gat gaa gaa gtt ata agg ttt ttt gac tgt gat tca cta gtg Ala Gly Asp Glu Glu Val Ile Arg Phe Phe Asp Cys Asp Ser Leu Val 225 230 235 | 902 |
| tgc ctc tgc gaa ttt aaa gct cat gaa aac agg gta aag gac atg ttc Cys Leu Cys Glu Phe Lys Ala His Glu Asn Arg Val Lys Asp Met Phe 240 245 250 | 950 |
| agt ttt gaa att cca gag cat cat gtt att gtt tca gca tcg agt gat Ser Phe Glu Ile Pro Glu His His Val Ile Val Ser Ala Ser Ser Asp 255 260 265 | 998 |
| ggt ttc atc aaa atg tgg aag ctt aag cag gat aag aaa gtt ccc cca Gly Phe Ile Lys Met Trp Lys Leu Lys Gln Asp Lys Lys Val Pro Pro 270 275 280 | 1046 |
| tct tta ctc tgt gaa ata aac act aat gcc agg ctg acg tgt ctt gga Ser Leu Leu Cys Glu Ile Asn Thr Asn Ala Arg Leu Thr Cys Leu Gly 285 290 295 300 | 1094 |
| gtg tgg cta gac aaa gtg gca gac atg aaa gaa agc ctt cct cca gct Val Trp Leu Asp Lys Val Ala Asp Met Lys Glu Ser Leu Pro Pro Ala 305 310 315 | 1142 |
| gca gag cct tct cct gta agt aaa gaa cag tcc aaa att ggc aaa aag Ala Glu Pro Ser Pro Val Ser Lys Glu Gln Ser Lys Ile Gly Lys Lys 320 325 330 | 1190 |
| gag cct ggt gac aca gtg cac aaa gaa gaa aag cgg tca aaa cct aac Glu Pro Gly Asp Thr Val His Lys Glu Glu Lys Arg Ser Lys Pro Asn 335 340 345 | 1238 |
| aca aag aaa cgc ggt tta aca ggt gac agt aag aaa gca aca aaa gaa Thr Lys Lys Arg Gly Leu Thr Gly Asp Ser Lys Lys Ala Thr Lys Glu 350 355 360 | 1286 |

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agt ggc ctg ata tca acc aag aag agg aaa atg gta gaa atg ttg gaa      1334
Ser Gly Leu Ile Ser Thr Lys Lys Arg Lys Met Val Glu Met Leu Glu
365                      370                      375                      380

aag aag agg aaa aag aag aaa ata aaa cca atg cag tga atcacagatg      1383
Lys Lys Arg Lys Lys Lys Lys Ile Lys Pro Met Gln *
                      385                      390

tctcctgaaa gaactctttt agatgaaatc attctactca aatgtacctt aattttttttt      1443

ttttccctga gtaaaagcaa gaaatttctt ccttttgaaa aaatatatat attaaaaaac      1503

cacttttaga tggttttttt taaaaaaaaa aaaaaa                                1538

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<210> 771
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<212> DNA
<213> Homo sapiens

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<222> (466) .. (1266)

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tgccgtgtca tggaggctca gtctctgagc agccattgaa ggggaaggaa ctgcgggtgt      180

gtgtgtgtat gtgtgtgtgt atgtgtgtgc gcgcgtgcgt gcgtgtgtgt gcgcgcgcta      240

gtgtgtggac aaggagggtgg gggcagctga gttagagtcc caactcttgg actccatttg      300

ctattctctt ctttctcccc cacacctatc tgggtggtggt agtgggcggt tatatttgcg      360

ttccttttca ttcatttcta aatctcttaa aaattttggg ttggggggtat tggggaaggc      420

aggaaaggga aaaggagagt agtagctgaa gagcaagagg aggac      atg gag atg      474
                      Met Glu Met
                      1

aag aag aag att aac ctg gag tta agg aac aga tcc ccg gag gag gtg      522
Lys Lys Lys Ile Asn Leu Glu Leu Arg Asn Arg Ser Pro Glu Glu Val
      5                      10                      15

aca gag tta gtc ctt gat aat tgc ctg tgt gtc aat ggg gaa att gaa      570
Thr Glu Leu Val Leu Asp Asn Cys Leu Cys Val Asn Gly Glu Ile Glu
      20                      25                      30                      35

ggc ctg aat gat act ttc aaa gaa cta gaa ttt ctg agt atg gct aat      618
Gly Leu Asn Asp Thr Phe Lys Glu Leu Glu Phe Leu Ser Met Ala Asn
                      40                      45                      50

gtg gaa cta agt tcg ctg gcc cgg ctt ccc agc tta aat aaa ctt cga      666
Val Glu Leu Ser Ser Leu Ala Arg Leu Pro Ser Leu Asn Lys Leu Arg
                      55                      60                      65

aaa ttg gag ctt agt gat aat ata att tct gga ggc ttg gaa gtc ctg      714
Lys Leu Glu Leu Ser Asp Asn Ile Ile Ser Gly Gly Leu Glu Val Leu

```

| 70 | 75 | 80 | |
|---|-----|-----|------|
| gca gag aaa tgt cca aat ctt acc tac ctc aat ctg agt gga aac aaa | | | 762 |
| Ala Glu Lys Cys Pro Asn Leu Thr Tyr Leu Asn Leu Ser Gly Asn Lys | | | |
| 85 | 90 | 95 | |
| ata aaa gat ctc agt aca gta gaa gct ctg caa aat ctt aaa aat ttg | | | 810 |
| Ile Lys Asp Leu Ser Thr Val Glu Ala Leu Gln Asn Leu Lys Asn Leu | | | |
| 100 | 105 | 110 | 115 |
| aaa agt ctt gac ctg ttt aac tgt gag atc aca aac ctg gaa gat tat | | | 858 |
| Lys Ser Leu Asp Leu Phe Asn Cys Glu Ile Thr Asn Leu Glu Asp Tyr | | | |
| | 120 | 125 | 130 |
| aga gaa agt att ttt gaa cta ctg cag caa atc aca tac tta gat gga | | | 906 |
| Arg Glu Ser Ile Phe Glu Leu Leu Gln Gln Ile Thr Tyr Leu Asp Gly | | | |
| | 135 | 140 | 145 |
| ttt gat cag gag gat aat gaa gcg ccg gac tct gaa gag gag gat gat | | | 954 |
| Phe Asp Gln Glu Asp Asn Glu Ala Pro Asp Ser Glu Glu Glu Asp Asp | | | |
| | 150 | 155 | 160 |
| gag gat gga gat gaa gat gat gaa gag gaa gag gaa aat gaa gct ggt | | | 1002 |
| Glu Asp Gly Asp Glu Asp Asp Glu Glu Glu Glu Glu Asn Glu Ala Gly | | | |
| | 165 | 170 | 175 |
| cca ccg gaa gga tat gag gaa gag gag gag gaa gag gag gat gag gat | | | 1050 |
| Pro Pro Glu Gly Tyr Glu Glu Glu Glu Glu Glu Glu Glu Asp Glu Asp | | | |
| 180 | 185 | 190 | 195 |
| gag gat gaa gat gaa gat gaa gca ggt tca gag ttg gga gag gga gaa | | | 1098 |
| Glu Asp Glu Asp Glu Asp Glu Ala Gly Ser Glu Leu Gly Glu Gly Glu | | | |
| | 200 | 205 | 210 |
| gag gaa gtg ggc ctc tca tac tta atg aaa gaa gaa att cag gat gaa | | | 1146 |
| Glu Glu Val Gly Leu Ser Tyr Leu Met Lys Glu Glu Ile Gln Asp Glu | | | |
| | 215 | 220 | 225 |
| gaa gat gat gat gac tat gtt gaa gaa ggg gaa gaa gag gaa gaa gag | | | 1194 |
| Glu Asp Asp Asp Asp Tyr Val Glu Glu Gly Glu Glu Glu Glu Glu Glu | | | |
| | 230 | 235 | 240 |
| gaa gaa gga ggt ctt cga ggg gag aag agg aaa cga gat gct gaa gac | | | 1242 |
| Glu Glu Gly Gly Leu Arg Gly Glu Lys Arg Lys Arg Asp Ala Glu Asp | | | |
| | 245 | 250 | 255 |
| gat gga gag gaa gaa gat gac tag atcattctaa gaccagattc tctaattgtt | | | 1296 |
| Asp Gly Glu Glu Glu Asp Asp * | | | |
| 260 | 265 | | |
| ctgggtgtgc aatagagtga tcacatcttt gtttcttcat gtacgatagc tatccctaca | | | 1356 |
| gaagataatg tgtaactttt tataggaaaa gtgtgggtttt actatttttg cttatcatt | | | 1416 |
| ccaaataaga actagtctgt taatgatcat attgtatgta gagaaaaatt ttcattgact | | | 1476 |
| cccattgtgg aattccctag caatttattt agacttaatt ttttaaattc aagcttactg | | | 1536 |
| tattagtcac ttttagccca taattaaaac atgatcactt ttaaaaaaaaa aa | | | 1588 |

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<220>
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<400> 772

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                                   1

gcc ctg gag gcg gcg gga ggg ccg ccg gag gaa acg ctg tca ctg tgg      103
Ala Leu Glu Ala Ala Gly Gly Pro Pro Glu Glu Thr Leu Ser Leu Trp
                    5                      10                      15

aaa cgg gag caa gct cgg ctg aag gcc cac gtc gta gac cgg gac acc      151
Lys Arg Glu Gln Ala Arg Leu Lys Ala His Val Val Asp Arg Asp Thr
                    20                      25                      30

gag gcg tgg cag cga gac ccc gcc ttc tcg ggt ctg cag agg gtc ggg      199
Glu Ala Trp Gln Arg Asp Pro Ala Phe Ser Gly Leu Gln Arg Val Gly
                    35                      40                      45

ggc gtt gac gtg tcc ttc gtg aaa ggg gac agt gtc cgc gct tgt gct      247
Gly Val Asp Val Ser Phe Val Lys Gly Asp Ser Val Arg Ala Cys Ala
                    50                      55                      60                      65

tcc ctg gtg gtg ctc agc ttc cct gag ctc gag gtc ctt ctt gtg gat      295
Ser Leu Val Val Leu Ser Phe Pro Glu Leu Glu Val Leu Leu Val Asp
                    70                      75                      80

gga aac ggg gta ctc cac cac cga ggc ttt ggg gtg gcc tgc cac ctt      343
Gly Asn Gly Val Leu His His Arg Gly Phe Gly Val Ala Cys His Leu
                    85                      90                      95

ggc gtc ctt aca gac ctg ccg tgt gtt ggg gtg gcc aag aaa ctt ctg      391
Gly Val Leu Thr Asp Leu Pro Cys Val Gly Val Ala Lys Lys Leu Leu
                    100                     105                     110

cag gtg gat ggg ctg gag aac aac gcc ctg cac aag gag aag atc cga      439
Gln Val Asp Gly Leu Glu Asn Asn Ala Leu His Lys Glu Lys Ile Arg
                    115                     120                     125

ctc ctg cag act cga gga gac tca ttc cct ctg ctg gga gac tct ggg      487
Leu Leu Gln Thr Arg Gly Asp Ser Phe Pro Leu Leu Gly Asp Ser Gly
                    130                     135                     140                     145

act gtc ctg gga atg gcc ctg agg agc cac gac cgc agc acc agg ccc      535
Thr Val Leu Gly Met Ala Leu Arg Ser His Asp Arg Ser Thr Arg Pro
                    150                     155                     160

ctc tac atc tcc gtg ggc cac agg atg agc ctg gag gcc gct gtg cgc      583
Leu Tyr Ile Ser Val Gly His Arg Met Ser Leu Glu Ala Ala Val Arg
                    165                     170                     175

ctg act tgc tgc tgc tgc agg ttc cgg atc cca gag ccc gtg cgc cag      631
Leu Thr Cys Cys Cys Cys Arg Phe Arg Ile Pro Glu Pro Val Arg Gln
                    180                     185                     190

gct gac atc tgc tcc cga gag cac atc cgc aag tcg ctg gga ctc ccc      679
Ala Asp Ile Cys Ser Arg Glu His Ile Arg Lys Ser Leu Gly Leu Pro
                    195                     200                     205

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ggg cca ccc aca ccg agg agc ccg aag gcg cag agg cca gtg gca tgc 727
 Gly Pro Pro Thr Pro Arg Ser Pro Lys Ala Gln Arg Pro Val Ala Cys
 210 215 220 225
 ccc aaa gga gac tcc gga gag tcc tca gca ctt tgt tga acgtggtggt 776
 Pro Lys Gly Asp Ser Gly Glu Ser Ser Ala Leu Cys *
 230 235
 gagagcacac gtcctcgtct cattcctgat cgaacgcggt ggtgagagca cacgtcctcg 836
 tctcgttcgt gacagaacgc ggtggtgaga gcacacgtcg tcgtttcgtat cctgatcgaa 896
 cgcggtggtg agagcgcacg tctcgtctc gttcctgaac gaacgcggtg gtgagagccc 956
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 Met
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gcc ctg gag gcg gcg gga ggg ccg ccg gag gaa acg ctg tca ctg tgg 103
 Ala Leu Glu Ala Ala Gly Gly Pro Pro Glu Glu Thr Leu Ser Leu Trp
 5 10 15

aaa cgg gag caa gct cgg ctg aag gcc cac gtc gta gac cgg gac acc 151
 Lys Arg Glu Gln Ala Arg Leu Lys Ala His Val Val Asp Arg Asp Thr
 20 25 30

gag gcg tgg cag cga gac ccc gcc ttc tcg ggt ctg cag agg gtc ggg 199
 Glu Ala Trp Gln Arg Asp Pro Ala Phe Ser Gly Leu Gln Arg Val Gly
 35 40 45

ggc gtt gac gtg tcc ttc gtg aaa ggg gac agt gtc cgc gct tgt gct 247
 Gly Val Asp Val Ser Phe Val Lys Gly Asp Ser Val Arg Ala Cys Ala
 50 55 60 65

tcc ctg gtg gtg ctc agc ttc cct gag ctc gag gtg gtg tat gag gag 295
 Ser Leu Val Val Leu Ser Phe Pro Glu Leu Glu Val Val Tyr Glu Glu
 70 75 80

agc cgc atg gtc agc ctc aca gcc ccc tac gtg tcg ggc ttc ctg gcc 343
 Ser Arg Met Val Ser Leu Thr Ala Pro Tyr Val Ser Gly Phe Leu Ala
 85 90 95

ttc cga gag gtg ccc ttc ttg ctg gag ctg gtg caa cag ctg cgg gag 391
 Phe Arg Glu Val Pro Phe Leu Leu Glu Leu Val Gln Gln Leu Arg Glu
 100 105 110

| | |
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| Lys Glu Pro Gly Leu Met Pro Gln Val Leu Leu Val Asp Gly Asn Gly | |
| 115 120 125 | |
| gta ctc cac cac cga ggc ttt ggg gtg gcc tgc cac ctt ggc gtc ctt | 487 |
| Val Leu His His Arg Gly Phe Gly Val Ala Cys His Leu Gly Val Leu | |
| 130 135 140 145 | |
| aca gac ctg ccg tgt gtt ggg gtg gcc aag aaa ctt ctg cag gtg gat | 535 |
| Thr Asp Leu Pro Cys Val Gly Val Ala Lys Lys Leu Leu Gln Val Asp | |
| 150 155 160 | |
| ggg ctg gag aac aac gcc ctg cac aag gag aag atc cga ctc ctg cag | 583 |
| Gly Leu Glu Asn Asn Ala Leu His Lys Glu Lys Ile Arg Leu Leu Gln | |
| 165 170 175 | |
| act cga gga gac tca ttc cct ctg ctg gga gac tct ggg act gtc ctg | 631 |
| Thr Arg Gly Asp Ser Phe Pro Leu Leu Gly Asp Ser Gly Thr Val Leu | |
| 180 185 190 | |
| gga atg gcc ctg agg agc cac gac cgc agc acc agg ccc ctc tac atc | 679 |
| Gly Met Ala Leu Arg Ser His Asp Arg Ser Thr Arg Pro Leu Tyr Ile | |
| 195 200 205 | |
| tcc gtg ggc cac agg atg agc ctg gag gcc gct gtg cgc ctg act tgc | 727 |
| Ser Val Gly His Arg Met Ser Leu Glu Ala Ala Val Arg Leu Thr Cys | |
| 210 215 220 225 | |
| tgc tgc tgc agg ttc cgg atc cca gag ccc gtg cgc cag gct gac atc | 775 |
| Cys Cys Cys Arg Phe Arg Ile Pro Glu Pro Val Arg Gln Ala Asp Ile | |
| 230 235 240 | |
| tgc tcc cga gag cac atc cgc aag tgc ctg gga ctc ccc ggg cca ccc | 823 |
| Cys Ser Arg Glu His Ile Arg Lys Ser Leu Gly Leu Pro Gly Pro Pro | |
| 245 250 255 | |
| aca ccg agg agc ccg aag gcg cag agg cca gtg gca tgc ccc aaa gga | 871 |
| Thr Pro Arg Ser Pro Lys Ala Gln Arg Pro Val Ala Cys Pro Lys Gly | |
| 260 265 270 | |
| gac tcc gga gag tcc tca gca ctt tgt tga a cgtggtggtg agagcacacg | 922 |
| Asp Ser Gly Glu Ser Ser Ala Leu Cys * | |
| 275 280 | |
| tcctcgtctc attcctgata gaacgcggtg gtgagagcac acgtcctcgt ctcgttcgtg | 982 |
| acagaacgcg gtggtgagag cacacgtcgt cgtttcgate ctgatcgaac gcggtggtga | 1042 |
| gagcgcacgt cctcgtctcg ttcctgaacg aacgcggtgg tgagagccca cgtcgtggtc | 1102 |
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ggagcttctc tttgtgggcg ggccgcgaggc ccgctagggg gttatactgg ggaacgtgcc      180
tgcgcgtgct tggatagtcc atttaaagcc cccatccctg caaggtgggtg ctttctacca      240
at   atg aat ctt ttc aac ctg gac cgt ttt ggc ttt gag aaa agg aat      287
    Met Asn Leu Phe Asn Leu Asp Arg Phe Gly Phe Glu Lys Arg Asn
      1             5             10             15

aag att gag gaa gcg ccc gaa gca acc cct caa cct tcc cag cct ggc      335
Lys Ile Glu Glu Ala Pro Glu Ala Thr Pro Gln Pro Ser Gln Pro Gly
      20             25             30

cct tct tca cca att tct ctt agt gct gaa gag gag aat gct gaa ggg      383
Pro Ser Ser Pro Ile Ser Leu Ser Ala Glu Glu Glu Asn Ala Glu Gly
      35             40             45

gaa gtt agc agg gca aac act cct gat tca gat ata act gaa aaa aca      431
Glu Val Ser Arg Ala Asn Thr Pro Asp Ser Asp Ile Thr Glu Lys Thr
      50             55             60

gaa gat tct agt gtt cca gaa act cca gat aat gaa aga aaa gca agt      479
Glu Asp Ser Ser Val Pro Glu Thr Pro Asp Asn Glu Arg Lys Ala Ser
      65             70             75

ata tca tat ttc aaa aat caa aga gga ata cag tat att gat ttg tct      527
Ile Ser Tyr Phe Lys Asn Gln Arg Gly Ile Gln Tyr Ile Asp Leu Ser
      80             85             90             95

tct gat agt gaa gat gtc gtt tcc cca aat tgc tcc aat aca gtt caa      575
Ser Asp Ser Glu Asp Val Val Ser Pro Asn Cys Ser Asn Thr Val Gln
      100            105            110

gag aaa aca ttc aac aaa gat aca gtg att ata gtt tct gag cca tct      623
Glu Lys Thr Phe Asn Lys Asp Thr Val Ile Ile Val Ser Glu Pro Ser
      115            120            125

gaa gat gaa gag tcc caa ggc ctt cct acc atg gca cgt aga aat gat      671
Glu Asp Glu Glu Ser Gln Gly Leu Pro Thr Met Ala Arg Arg Asn Asp
      130            135            140

gat att tca gaa ctg gaa gac ctt tcg gaa ttg gaa gac ctt aaa gat      719
Asp Ile Ser Glu Leu Glu Asp Leu Ser Glu Leu Glu Asp Leu Lys Asp
      145            150            155

gct aaa ctt cag act ttg aag gaa ctt ttt cca caa aga agt gac aat      767
Ala Lys Leu Gln Thr Leu Lys Glu Leu Phe Pro Gln Arg Ser Asp Asn
      160            165            170            175

gat tta ctt aag ttg att gaa tca aca agc act atg gat gga gca att      815
Asp Leu Leu Lys Leu Ile Glu Ser Thr Ser Thr Met Asp Gly Ala Ile
      180            185            190

gct gct gcc ttg ctg atg ttt ggt gat gca ggt ggt ggg ccc agg aaa      863
Ala Ala Ala Leu Leu Met Phe Gly Asp Ala Gly Gly Gly Pro Arg Lys
      195            200            205

aga aaa tta tct tct tct tca gag cca tat gag gaa gat gaa ttt aat      911

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Lys | Leu | Ser | Ser | Ser | Ser | Glu | Pro | Tyr | Glu | Glu | Asp | Glu | Phe | Asn | |
| | | 210 | | | | | 215 | | | | | 220 | | | | |
| gat | gat | caa | tct | ata | aaa | aag | aca | aga | ctg | gat | cat | gga | gag | gaa | tca | 959 |
| Asp | Asp | Gln | Ser | Ile | Lys | Lys | Thr | Arg | Leu | Asp | His | Gly | Glu | Glu | Ser | |
| | | 225 | | | | 230 | | | | | 235 | | | | | |
| aat | gag | tct | gca | gaa | tct | agc | agt | aat | tgg | gaa | aag | cag | gaa | agt | att | 1007 |
| Asn | Glu | Ser | Ala | Glu | Ser | Ser | Ser | Asn | Trp | Glu | Lys | Gln | Glu | Ser | Ile | |
| | | 240 | | | 245 | | | | | 250 | | | | | 255 | |
| gta | ctg | aaa | ttg | caa | aag | gaa | ttt | ccc | aat | ttt | gat | aaa | cag | gaa | ctt | 1055 |
| Val | Leu | Lys | Leu | Gln | Lys | Glu | Phe | Pro | Asn | Phe | Asp | Lys | Gln | Glu | Leu | |
| | | | | 260 | | | | | 265 | | | | | | 270 | |
| aga | gaa | gta | ctc | aag | gaa | cat | gaa | tgg | atg | tac | aca | gaa | gct | tta | gaa | 1103 |
| Arg | Glu | Val | Leu | Lys | Glu | His | Glu | Trp | Met | Tyr | Thr | Glu | Ala | Leu | Glu | |
| | | | 275 | | | | | 280 | | | | | 285 | | | |
| tct | cta | aaa | gtg | ttt | gca | gaa | gac | caa | gat | atg | caa | tat | gca | tca | caa | 1151 |
| Ser | Leu | Lys | Val | Phe | Ala | Glu | Asp | Gln | Asp | Met | Gln | Tyr | Ala | Ser | Gln | |
| | | 290 | | | | | 295 | | | | | 300 | | | | |
| agt | gag | gtt | cca | aat | gga | aaa | gaa | gtt | tct | tca | aga | agt | caa | aat | tac | 1199 |
| Ser | Glu | Val | Pro | Asn | Gly | Lys | Glu | Val | Ser | Ser | Arg | Ser | Gln | Asn | Tyr | |
| | | 305 | | | | 310 | | | | | | 315 | | | | |
| cct | aaa | aat | gca | act | aaa | aca | aaa | cta | aaa | cag | aaa | ttt | tca | atg | aaa | 1247 |
| Pro | Lys | Asn | Ala | Thr | Lys | Thr | Lys | Leu | Lys | Gln | Lys | Phe | Ser | Met | Lys | |
| | | 320 | | | 325 | | | | | 330 | | | | | 335 | |
| gca | caa | aat | ggc | ttt | aac | aaa | aaa | aaa | aaa | aaa | aat | gtt | ttt | aat | cca | 1295 |
| Ala | Gln | Asn | Gly | Phe | Asn | Lys | Lys | Lys | Lys | Lys | Asn | Val | Phe | Asn | Pro | |
| | | | | 340 | | | | 345 | | | | | | 350 | | |
| aag | aga | gtt | gtt | gaa | gac | tct | gaa | tat | gat | tca | ggt | tct | gat | gtc | ggt | 1343 |
| Lys | Arg | Val | Val | Glu | Asp | Ser | Glu | Tyr | Asp | Ser | Gly | Ser | Asp | Val | Gly | |
| | | | 355 | | | | | 360 | | | | | 365 | | | |
| agt | tca | cta | gat | gag | gac | tat | agt | agt | ggt | gaa | gaa | gtg | atg | gag | gat | 1391 |
| Ser | Ser | Leu | Asp | Glu | Asp | Tyr | Ser | Ser | Gly | Glu | Glu | Val | Met | Glu | Asp | |
| | | 370 | | | | | 375 | | | | | 380 | | | | |
| ggc | tat | aaa | ggt | aaa | att | ctt | cac | ttc | ctt | caa | gat | gct | tca | att | ggt | 1439 |
| Gly | Tyr | Lys | Gly | Lys | Ile | Leu | His | Phe | Leu | Gln | Asp | Ala | Ser | Ile | Gly | |
| | | 385 | | | | 390 | | | | | 395 | | | | | |
| gaa | ctt | act | ttg | att | cct | cag | tgt | tct | cag | aaa | aag | gct | cag | aag | ata | 1487 |
| Glu | Leu | Thr | Leu | Ile | Pro | Gln | Cys | Ser | Gln | Lys | Lys | Ala | Gln | Lys | Ile | |
| | | 400 | | | 405 | | | | | 410 | | | | | 415 | |
| aca | gaa | ctc | cgg | ccc | ttt | aat | agt | tgg | gag | gct | ctg | ttc | aca | aag | atg | 1535 |
| Thr | Glu | Leu | Arg | Pro | Phe | Asn | Ser | Trp | Glu | Ala | Leu | Phe | Thr | Lys | Met | |
| | | | | 420 | | | | | 425 | | | | | 430 | | |
| tcc | aaa | act | aat | ggc | tta | tca | gaa | gat | ttg | ata | tgg | cac | tgt | aaa | aca | 1583 |
| Ser | Lys | Thr | Asn | Gly | Leu | Ser | Glu | Asp | Leu | Ile | Trp | His | Cys | Lys | Thr | |
| | | | 435 | | | | | 440 | | | | | 445 | | | |
| ctg | atc | caa | gaa | aga | gat | gta | gtt | ata | agg | ctt | atg | aac | aaa | tgt | gaa | 1631 |
| Leu | Ile | Gln | Glu | Arg | Asp | Val | Val | Ile | Arg | Leu | Met | Asn | Lys | Cys | Glu | |
| | | 450 | | | | 455 | | | | | | 460 | | | | |
| gac | att | tca | aat | aaa | ttg | acc | aaa | caa | gtt | acc | atg | ctt | act | gga | aat | 1679 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Asp | Ile | Ser | Asn | Lys | Leu | Thr | Lys | Gln | Val | Thr | Met | Leu | Thr | Gly | Asn | | |
| 465 | | | | | | 470 | | | | | 475 | | | | | | |
| gga | ggt | gga | tgg | aac | ata | gaa | caa | cct | tcc | att | cta | aac | caa | agt | ttg | 1727 | |
| Gly | Gly | Gly | Trp | Asn | Ile | Glu | Gln | Pro | Ser | Ile | Leu | Asn | Gln | Ser | Leu | | |
| 480 | | | | | 485 | | | | | 490 | | | | | 495 | | |
| tca | ctc | aag | ccc | tat | cag | aag | ggt | ggt | ttg | aat | tgg | ctg | gca | ttg | gta | 1775 | |
| Ser | Leu | Lys | Pro | Tyr | Gln | Lys | Val | Gly | Leu | Asn | Trp | Leu | Ala | Leu | Val | | |
| | | | | 500 | | | | | 505 | | | | | 510 | | | |
| cat | aaa | cat | gga | ctt | aat | ggc | att | ttg | gca | gat | gaa | atg | ggc | cta | gga | 1823 | |
| His | Lys | His | Gly | Leu | Asn | Gly | Ile | Leu | Ala | Asp | Glu | Met | Gly | Leu | Gly | | |
| | | | 515 | | | | | 520 | | | | | 525 | | | | |
| aaa | act | att | caa | gcc | att | gca | ttt | ctg | gca | tac | ctc | tat | cag | gag | ggt | 1871 | |
| Lys | Thr | Ile | Gln | Ala | Ile | Ala | Phe | Leu | Ala | Tyr | Leu | Tyr | Gln | Glu | Gly | | |
| | | | 530 | | | | 535 | | | | | | 540 | | | | |
| aat | aat | ggt | cct | cat | ttg | atc | ggt | ggt | cca | gct | tca | act | ata | gat | aac | 1919 | |
| Asn | Asn | Gly | Pro | His | Leu | Ile | Val | Val | Pro | Ala | Ser | Thr | Ile | Asp | Asn | | |
| | | | 545 | | | 550 | | | | | 555 | | | | | | |
| tgg | tta | agg | gaa | ggt | aat | tta | tgg | tgc | cct | act | ttg | aag | gtc | ctc | tgt | 1967 | |
| Trp | Leu | Arg | Glu | Val | Asn | Leu | Trp | Cys | Pro | Thr | Leu | Lys | Val | Leu | Cys | | |
| 560 | | | | | 565 | | | | | 570 | | | | | 575 | | |
| tac | tat | ggt | tct | caa | gaa | gaa | cgt | aaa | caa | att | aga | ttt | aac | att | cat | 2015 | |
| Tyr | Tyr | Gly | Ser | Gln | Glu | Glu | Arg | Lys | Gln | Ile | Arg | Phe | Asn | Ile | His | | |
| | | | | 580 | | | | | 585 | | | | | 590 | | | |
| agt | aga | tat | gaa | gat | tac | aat | gta | att | gtg | acc | aca | tat | aac | tgt | gcg | 2063 | |
| Ser | Arg | Tyr | Glu | Asp | Tyr | Asn | Val | Ile | Val | Thr | Thr | Tyr | Asn | Cys | Ala | | |
| | | | 595 | | | | 600 | | | | | | 605 | | | | |
| atc | agc | agt | tct | gat | gat | cgt | agt | ctg | ttt | cga | cgg | ctg | aaa | ctt | aat | 2111 | |
| Ile | Ser | Ser | Ser | Asp | Asp | Arg | Ser | Leu | Phe | Arg | Arg | Leu | Lys | Leu | Asn | | |
| | | | 610 | | | | 615 | | | | | 620 | | | | | |
| tac | gca | att | ttt | gat | gag | ggc | cat | atg | ctg | aag | aat | atg | ggc | tcc | att | 2159 | |
| Tyr | Ala | Ile | Phe | Asp | Glu | Gly | His | Met | Leu | Lys | Asn | Met | Gly | Ser | Ile | | |
| | 625 | | | | | 630 | | | | 635 | | | | | | | |
| cgc | tac | cag | cac | ctt | atg | aca | att | aat | gca | aat | aac | cgt | ttg | ctg | ctc | 2207 | |
| Arg | Tyr | Gln | His | Leu | Met | Thr | Ile | Asn | Ala | Asn | Asn | Arg | Leu | Leu | Leu | | |
| 640 | | | | 645 | | | | | | 650 | | | | | 655 | | |
| aca | ggc | aca | cct | gta | cag | aac | aat | ctg | tta | gaa | ctc | atg | tcg | ctg | ttg | 2255 | |
| Thr | Gly | Thr | Pro | Val | Gln | Asn | Asn | Leu | Leu | Glu | Leu | Met | Ser | Leu | Leu | | |
| | | | | 660 | | | | 665 | | | | | | 670 | | | |
| aat | ttt | ggt | atg | cca | cac | atg | ttt | agt | agt | agc | acc | agt | gaa | ata | cga | 2303 | |
| Asn | Phe | Val | Met | Pro | His | Met | Phe | Ser | Ser | Ser | Thr | Ser | Glu | Ile | Arg | | |
| | | | 675 | | | | 680 | | | | | | 685 | | | | |
| aga | atg | ttt | tcc | tct | aag | aca | aaa | tca | gca | gat | gag | caa | agc | ata | tat | 2351 | |
| Arg | Met | Phe | Ser | Ser | Lys | Thr | Lys | Ser | Ala | Asp | Glu | Gln | Ser | Ile | Tyr | | |
| | | | 690 | | | | 695 | | | | | 700 | | | | | |
| gaa | aag | gag | aga | ata | gca | cat | gca | aaa | caa | att | ata | aag | cca | ttt | att | 2399 | |
| Glu | Lys | Glu | Arg | Ile | Ala | His | Ala | Lys | Gln | Ile | Ile | Lys | Pro | Phe | Ile | | |
| | 705 | | | | 710 | | | | | 715 | | | | | | | |
| ctc | aga | aga | gta | aaa | gaa | gag | ggt | ctc | aag | cag | tta | ccc | ccc | aag | aaa | 2447 | |

| | |
|---|------|
| Leu Arg Arg Val Lys Glu Glu Val Leu Lys Gln Leu Pro Pro Lys Lys 720 725 730 735 | |
| gat cga att gag ttg tgt gca atg tcg gag aag cag gag caa ctc tat Asp Arg Ile Glu Leu Cys Ala Met Ser Glu Lys Gln Glu Gln Leu Tyr 740 745 750 | 2495 |
| ttg ggt ctt ttc aac aga ttg aaa aaa tct atc aat aac ttg gtc aca Leu Gly Leu Phe Asn Arg Leu Lys Lys Ser Ile Asn Asn Leu Val Thr 755 760 765 | 2543 |
| gaa aaa aac aca gaa atg tgc aat gtc atg atg cag ttg agg aaa atg Glu Lys Asn Thr Glu Met Cys Asn Val Met Met Gln Leu Arg Lys Met 770 775 780 | 2591 |
| gcc aat cat cct tta tta cat cgc caa tat tac aca gct gaa aaa ctc Ala Asn His Pro Leu Leu His Arg Gln Tyr Tyr Thr Ala Glu Lys Leu 785 790 795 | 2639 |
| aag gaa atg tct cag ctt atg cta aag gaa cct aca cat tgt gag gct Lys Glu Met Ser Gln Leu Met Leu Lys Glu Pro Thr His Cys Glu Ala 800 805 810 815 | 2687 |
| aac cct gac ctg atc ttt gaa gat atg gaa gtt atg aca gac ttc gaa Asn Pro Asp Leu Ile Phe Glu Asp Met Glu Val Met Thr Asp Phe Glu 820 825 830 | 2735 |
| cta cat gta ctt tgt aaa cag tac cga cac att aat aac ttt cag tta Leu His Val Leu Cys Lys Gln Tyr Arg His Ile Asn Asn Phe Gln Leu 835 840 845 | 2783 |
| gac atg gac ttg att tta gat tct gga aaa ttt cga gtt tta gga tgc Asp Met Asp Leu Ile Leu Asp Ser Gly Lys Phe Arg Val Leu Gly Cys 850 855 860 | 2831 |
| atc ttg tct gaa ttg aaa cag aag ggt gat aga gtt gtg tta ttt agc Ile Leu Ser Glu Leu Lys Gln Lys Gly Asp Arg Val Val Leu Phe Ser 865 870 875 | 2879 |
| caa ttt acc atg atg ctg gat atc tta gag gtt cta tta aaa cat cat Gln Phe Thr Met Met Leu Asp Ile Leu Glu Val Leu Leu Lys His His 880 885 890 895 | 2927 |
| cag cat agg tac ctc aga tta gat gga aag act cag att tct gaa agg Gln His Arg Tyr Leu Arg Leu Asp Gly Lys Thr Gln Ile Ser Glu Arg 900 905 910 | 2975 |
| att cat cta att gat gag ttt aat acc gat atg gat atc ttt gtg ttt Ile His Leu Ile Asp Glu Phe Asn Thr Asp Met Asp Ile Phe Val Phe 915 920 925 | 3023 |
| ctg cta tca aca aaa gct ggt gga tta gga ata aat ctg act tca gca Leu Leu Ser Thr Lys Ala Gly Gly Leu Gly Ile Asn Leu Thr Ser Ala 930 935 940 | 3071 |
| aat gtt gtt ata ctt cac gat att gac tgt aat cct tat aat gac aaa Asn Val Val Ile Leu His Asp Ile Asp Cys Asn Pro Tyr Asn Asp Lys 945 950 955 | 3119 |
| caa gca gaa gat aga tgc cat aga gta ggc cag act aaa gaa gta cta Gln Ala Glu Asp Arg Cys His Arg Val Gly Gln Thr Lys Glu Val Leu 960 965 970 975 | 3167 |
| gtt ata aaa cta ata agc caa ggg acg att gaa gaa tcc atg cta aaa | 3215 |

| | | | | | | | | | | | | | | | | | |
|------------|------------|------------|-------------|-------------|------------|------------|------------|------------|------------|-----|-----|------|-----|-----|-----|--|------|
| Val | Ile | Lys | Leu | Ile | Ser | Gln | Gly | Thr | Ile | Glu | Glu | Ser | Met | Leu | Lys | | |
| | | | | 980 | | | | | 985 | | | | | 990 | | | |
| att | aac | caa | cag | aaa | ttg | aaa | cta | gaa | cag | gat | atg | act | aca | gta | gat | | 3263 |
| Ile | Asn | Gln | Gln | Lys | Leu | Lys | Leu | Glu | Gln | Asp | Met | Thr | Thr | Val | Asp | | |
| | | | 995 | | | | 1000 | | | | | 1005 | | | | | |
| gaa | ggt | gat | gaa | ggg | agt | atg | cca | gca | gat | ata | gcc | aca | tta | cta | aaa | | 3311 |
| Glu | Gly | Asp | Glu | Gly | Ser | Met | Pro | Ala | Asp | Ile | Ala | Thr | Leu | Leu | Lys | | |
| | 1010 | | | | | | 1015 | | | | | 1020 | | | | | |
| aca | tca | atg | ggc | ctg | tga | aataag | aactgtgaac | tctcaattga | tgaggaaata | | | | | | | | 3365 |
| Thr | Ser | Met | Gly | Leu | * | | | | | | | | | | | | |
| | 1025 | | | | | | | | | | | | | | | | |
| tcaacttggg | gcactcaagg | acatttacat | tatgatgacc | atgggggttta | tgaacattta | | | | | | | | | | | | 3425 |
| taacttttta | taatttccat | attacatttc | tcatagtatg | gacaactttt | tgccactaac | | | | | | | | | | | | 3485 |
| tgaattctcc | aaatactcac | acgtgaaatt | tcaaaaaaga | agccacaaat | atgtagttct | | | | | | | | | | | | 3545 |
| gaagatgttg | aataatcatt | ttacaaagca | gttttctgaa | tggggattag | ttggtgattg | | | | | | | | | | | | 3605 |
| tttgtaacaa | atatgcta | at | gcttttagaaa | tgtcagtatt | tttgtaatta | tttctacctc | | | | | | | | | | | 3665 |
| caaatatata | tatattgtct | ttcactggat | aatgtgtgta | gattttttaca | tgtgccttat | | | | | | | | | | | | 3725 |
| ttgacaatgc | ttatgtcttg | tttttgcttg | tctcatttga | agttcttttt | tattatgtta | | | | | | | | | | | | 3785 |
| aagaatgcag | ctgtatagat | tatatagctt | tcattttatt | gctatttgaa | gcagatgttc | | | | | | | | | | | | 3845 |
| accaatgtca | gcaagaactc | aacctgaatt | taaaggtggc | attccatata | ctaacatccc | | | | | | | | | | | | 3905 |
| ccaggtcctc | tcaagtactt | ctgctgaaac | aaattttatt | ggctaggcac | taagttgttt | | | | | | | | | | | | 3965 |
| tccagtgaat | agtaactaaa | gaagccccta | ccttgctcca | tggattaagc | ccttccgttc | | | | | | | | | | | | 4025 |
| attttccaac | tggcctaata | gggcctatta | ctcttgctaa | tcctgtgcat | c | | | | | | | | | | | | 4076 |

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| ccactcgc | atg | cag | cta | ccg | ctc | cgg | aat | tcc | cgg | gtc | gac | ggt | ttc | gtc | | | 50 |
| | Met | Gln | Leu | Pro | Leu | Arg | Asn | Ser | Arg | Val | Asp | Gly | Phe | Val | | | |
| | 1 | | | | 5 | | | | | 10 | | | | | | | |
| tcg | aac | ttg | gtc | ggg | gcg | cgg | atc | ccg | aga | ggg | aaa | gtc | ata | aca | acc | | 98 |
| Ser | Asn | Leu | Val | Gly | Ala | Arg | Ile | Pro | Arg | Gly | Lys | Val | Ile | Thr | Thr | | |
| | 15 | | | | 20 | | | | | 25 | | | | | 30 | | |
| gca | cga | ggg | agt | tcg | act | ggc | gaa | ctg | gaa | ggc | cac | gcc | tcc | tcc | cgc | | 146 |
| Ala | Arg | Gly | Ser | Ser | Thr | Gly | Glu | Leu | Glu | Gly | His | Ala | Ser | Ser | Arg | | |
| | | | 35 | | | | | 40 | | | | | 45 | | | | |

| | |
|---|-----|
| ctg ccc cct cag ccc tgt ggc tgg ggg cag agc tca gac tta tta tct | 194 |
| Leu Pro Pro Gln Pro Cys Gly Trp Gly Gln Ser Ser Asp Leu Leu Ser | |
| 50 55 60 | |
| agg ata gat ttg gat gaa cta atg aaa aaa gat gaa ccg cct ctt gat | 242 |
| Arg Ile Asp Leu Asp Glu Leu Met Lys Lys Asp Glu Pro Pro Leu Asp | |
| 65 70 75 | |
| ttt cct gat acc ctg gaa gga ttt gaa tat gct ttt aat gaa aag gga | 290 |
| Phe Pro Asp Thr Leu Glu Gly Phe Glu Tyr Ala Phe Asn Glu Lys Gly | |
| 80 85 90 | |
| cag tta aga cac ata aaa act ggg gaa cca ttt gtt ttt aac tac cgg | 338 |
| Gln Leu Arg His Ile Lys Thr Gly Glu Pro Phe Val Phe Asn Tyr Arg | |
| 95 100 105 110 | |
| gaa gat tta cac aga tgg aac cag aaa aga tac gag gct cta gga gag | 386 |
| Glu Asp Leu His Arg Trp Asn Gln Lys Arg Tyr Glu Ala Leu Gly Glu | |
| 115 120 125 | |
| atc atc acg aag tat gta tat gag ctc ctg gaa aag gat tgt aat ttg | 434 |
| Ile Ile Thr Lys Tyr Val Tyr Glu Leu Leu Glu Lys Asp Cys Asn Leu | |
| 130 135 140 | |
| aaa aaa gta tct att cca gta gat gcc act gag agt gaa cca aag agt | 482 |
| Lys Lys Val Ser Ile Pro Val Asp Ala Thr Glu Ser Glu Pro Lys Ser | |
| 145 150 155 | |
| ttt atc ttt atg agt gag gat gct ttg aca aat cca cag aaa ctg atg | 530 |
| Phe Ile Phe Met Ser Glu Asp Ala Leu Thr Asn Pro Gln Lys Leu Met | |
| 160 165 170 | |
| gtt tta att cat ggt agt ggt gtt gtc agg gca ggg cag tgg gct aga | 578 |
| Val Leu Ile His Gly Ser Gly Val Val Arg Ala Gly Gln Trp Ala Arg | |
| 175 180 185 190 | |
| aga ctt att ata aat gaa gat ctg gac agt ggc aca cag ata ccg ttt | 626 |
| Arg Leu Ile Ile Asn Glu Asp Leu Asp Ser Gly Thr Gln Ile Pro Phe | |
| 195 200 205 | |
| att aaa aga gct gtg gct gaa gga tat gga gta ata gta cta aat ccc | 674 |
| Ile Lys Arg Ala Val Ala Glu Gly Tyr Gly Val Ile Val Leu Asn Pro | |
| 210 215 220 | |
| aat gaa aac tat att gaa gta gaa aag ccg aag ata cac gta cag tca | 722 |
| Asn Glu Asn Tyr Ile Glu Val Glu Lys Pro Lys Ile His Val Gln Ser | |
| 225 230 235 | |
| tca tct gat agt tca gat gaa cca gca gaa aaa ccg gaa aga aaa gat | 770 |
| Ser Ser Asp Ser Ser Asp Glu Pro Ala Glu Lys Arg Glu Arg Lys Asp | |
| 240 245 250 | |
| aaa gtt tct aaa gaa aca aag aag cga cgt gat ttc tat gag aag tat | 818 |
| Lys Val Ser Lys Glu Thr Lys Lys Arg Arg Asp Phe Tyr Glu Lys Tyr | |
| 255 260 265 270 | |
| cgt aac aac aaa aaa aaa aaa aaa aca cag aag ggg ggc cag gta | 866 |
| Arg Asn Asn Lys Lys Lys Lys Lys Lys Thr Gln Lys Gly Gly Gln Val | |
| 275 280 285 | |
| caa caa tac aac ctg ata atg agt cat aat aca att cac tag acca | 912 |
| Gln Gln Tyr Asn Leu Ile Met Ser His Asn Thr Ile His * | |
| 290 295 300 | |

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 Met Ala Leu Asp Asn Leu Leu Ala Asn Leu Pro Pro
 1 5 10

gcc aag cca gga aaa agt agc agt tta gaa atg act ccc tac aat aca 97
 Ala Lys Pro Gly Lys Ser Ser Ser Leu Glu Met Thr Pro Tyr Asn Thr
 15 20 25

cct cag cta tct cca gca acc act cca gca aat aaa aag aat cga tta 145
 Pro Gln Leu Ser Pro Ala Thr Thr Pro Ala Asn Lys Lys Asn Arg Leu
 30 35 40

cct ata gca act cgg agc aga agc cgc acc aat atg cta atg gac cta 193
 Pro Ile Ala Thr Arg Ser Arg Ser Arg Thr Asn Met Leu Met Asp Leu
 45 50 55 60

cat atg gac cat gaa gga tca tct caa gaa acc atc cag gag gtg caa 241
 His Met Asp His Glu Gly Ser Ser Gln Glu Thr Ile Gln Glu Val Gln
 65 70 75

cca gaa gag gtg ttg gtc att tcc tta ggt aca ggt ccc cag ctt act 289
 Pro Glu Glu Val Leu Val Ile Ser Leu Gly Thr Gly Pro Gln Leu Thr
 80 85 90

cca ggg atg atg tca gaa aat gag gtc cta aac atg cag ctt tcg gat 337
 Pro Gly Met Met Ser Glu Asn Glu Val Leu Asn Met Gln Leu Ser Asp
 95 100 105

gga gga caa gga gat gtc cct gtt gat gaa aac aaa ctc cat ggt aaa 385
 Gly Gly Gln Gly Asp Val Pro Val Asp Glu Asn Lys Leu His Gly Lys
 110 115 120

cct gat aaa acc ttg cgc ttt tcc ctc tgc agt gat aat ctg gaa gga 433
 Pro Asp Lys Thr Leu Arg Phe Ser Leu Cys Ser Asp Asn Leu Glu Gly
 125 130 135 140

ata tct gaa ggt cct tca aat cgc tcc aat tca gtg tcc tcc cta gac 481
 Ile Ser Glu Gly Pro Ser Asn Arg Ser Asn Ser Val Ser Ser Leu Asp
 145 150 155

cta gaa gga gag tct gtg tca gaa ctt gga gca gga cct tct ggc agt 529
 Leu Glu Gly Glu Ser Val Ser Glu Leu Gly Ala Gly Pro Ser Gly Ser
 160 165 170

aat gga gtt gaa gct cta cag ctg tta gaa cat gag caa gct aca aca 577
 Asn Gly Val Glu Ala Leu Gln Leu Leu Glu His Glu Gln Ala Thr Thr
 175 180 185

cag gat aac ctt gat gat aag cta agg aag ttt gaa att cgt gac atg 625
 Gln Asp Asn Leu Asp Asp Lys Leu Arg Lys Phe Glu Ile Arg Asp Met

| 190 | 195 | 200 | |
|---|-----|-----|------|
| atg gga tta aca gat gat agg gac ata tca gaa aca gtg agt gag acc Met Gly Leu Thr Asp Asp Arg Asp Ile Ser Glu Thr Val Ser Glu Thr 205 210 215 220 | | | 673 |
| tgg agt aca gac gtc ttg gga agt gac ttt gac cct aat att gat gaa Trp Ser Thr Asp Val Leu Gly Ser Asp Phe Asp Pro Asn Ile Asp Glu 225 230 235 | | | 721 |
| gat cgc ttg caa gaa att gca ggt gct gca gca gag aac atg tta ggc Asp Arg Leu Gln Glu Ile Ala Gly Ala Ala Glu Asn Met Leu Gly 240 245 250 | | | 769 |
| agt ttg ctg tgc ctc cca ggt tca ggg tca gtg ctt ctt gac ccc tgc Ser Leu Leu Cys Leu Pro Gly Ser Gly Ser Val Leu Leu Asp Pro Cys 255 260 265 | | | 817 |
| act ggt tct acc ata tca gag aca aca agt gaa gct tgg agt gta gag Thr Gly Ser Thr Ile Ser Glu Thr Thr Ser Glu Ala Trp Ser Val Glu 270 275 280 | | | 865 |
| gta ttg cca agt gac tca gag gcc cca gac cta aag cag gag gag cgt Val Leu Pro Ser Asp Ser Glu Ala Pro Asp Leu Lys Gln Glu Glu Arg 285 290 295 300 | | | 913 |
| ctg caa gaa ctg gag agc tgt tct gga ctg ggt agc aca tct gat gat Leu Gln Glu Leu Glu Ser Cys Ser Gly Leu Gly Ser Thr Ser Asp Asp 305 310 315 | | | 961 |
| acg gat gtc agg gag gtc agt tcc cgc ccc agc aca cca ggc ctc agt Thr Asp Val Arg Glu Val Ser Ser Arg Pro Ser Thr Pro Gly Leu Ser 320 325 330 | | | 1009 |
| gtt gtg tcc ggc ata agt gca acc tct gag gat att ccc aat aag att Val Val Ser Gly Ile Ser Ala Thr Ser Glu Asp Ile Pro Asn Lys Ile 335 340 345 | | | 1057 |
| gaa gac ctg aga tct gag tgc agc tct gat ttt ggg ggt aaa gat tct Glu Asp Leu Arg Ser Glu Cys Ser Ser Asp Phe Gly Gly Lys Asp Ser 350 355 360 | | | 1105 |
| gtc act agt cca gac atg gat gaa ata act cac gat ttt ctt tat ata Val Thr Ser Pro Asp Met Asp Glu Ile Thr His Asp Phe Leu Tyr Ile 365 370 375 380 | | | 1153 |
| ctt cag cca aaa caa cat ttt caa cac att gaa gca gaa gca gac atg Leu Gln Pro Lys Gln His Phe Gln His Ile Glu Ala Glu Ala Asp Met 385 390 395 | | | 1201 |
| aga atc cag ctg tct tct agt gcc cac cag ctg acc tct cct cct tct Arg Ile Gln Leu Ser Ser Ser Ala His Gln Leu Thr Ser Pro Pro Ser 400 405 410 | | | 1249 |
| cag tca gag tct ctg ctg gcc atg ttt gat cca ctg tct tca cat gaa Gln Ser Glu Ser Leu Leu Ala Met Phe Asp Pro Leu Ser Ser His Glu 415 420 425 | | | 1297 |
| ggg gct tct gct gtg gta agg cca aag gtt cac tat gct agg cca tcg Gly Ala Ser Ala Val Val Arg Pro Lys Val His Tyr Ala Arg Pro Ser 430 435 440 | | | 1345 |
| cat cca cca cca gat ccc cca atc ctg gaa gga gct gtg gga gga aat His Pro Pro Pro Asp Pro Pro Ile Leu Glu Gly Ala Val Gly Gly Asn 445 450 455 460 465 470 475 480 | | | 1393 |

| 445 | 450 | 455 | 460 | |
|---|-----|-----|-----|------|
| gag gcc agg ttg cca aac ttt ggt tcc cat gtt tta act cca gct gaa | | | | 1441 |
| Glu Ala Arg Leu Pro Asn Phe Gly Ser His Val Leu Thr Pro Ala Glu | 465 | 470 | 475 | |
| atg gag gca ttc aag caa agg cat tct tac cct gag aga cta gtt cga | | | | 1489 |
| Met Glu Ala Phe Lys Gln Arg His Ser Tyr Pro Glu Arg Leu Val Arg | 480 | 485 | 490 | |
| agc agg agc tct gat ata gta tct tct gtc cgg aga ccc atg agt gac | | | | 1537 |
| Ser Arg Ser Ser Asp Ile Val Ser Ser Val Arg Arg Pro Met Ser Asp | 495 | 500 | 505 | |
| ccc agc tgg aac cgg cgt cca gga aat gaa gag cga gaa ctc cct cca | | | | 1585 |
| Pro Ser Trp Asn Arg Arg Pro Gly Asn Glu Glu Arg Glu Leu Pro Pro | 510 | 515 | 520 | |
| gct gca gcc att ggt gct act tct ttg gtg gct gca cct cat tca tca | | | | 1633 |
| Ala Ala Ala Ile Gly Ala Thr Ser Leu Val Ala Ala Pro His Ser Ser | 525 | 530 | 535 | 540 |
| tct tca tcc ccg agt aag gac tcc tca aga gga gag act gaa gaa cgc | | | | 1681 |
| Ser Ser Ser Pro Ser Lys Asp Ser Ser Arg Gly Glu Thr Glu Glu Arg | 545 | 550 | 555 | |
| aaa gat agc gat gat gag aaa tca gac agg aac aga cct tgg tgg aga | | | | 1729 |
| Lys Asp Ser Asp Asp Glu Lys Ser Asp Arg Asn Arg Pro Trp Trp Arg | 560 | 565 | 570 | |
| aaa cgt ttt gtt tca gcc atg cct aaa gct cct ata cca ttt aga aag | | | | 1777 |
| Lys Arg Phe Val Ser Ala Met Pro Lys Ala Pro Ile Pro Phe Arg Lys | 575 | 580 | 585 | |
| aaa gaa aaa caa gaa aaa gac aaa gat gat ctg ggg cct gac aga ttc | | | | 1825 |
| Lys Glu Lys Gln Glu Lys Asp Lys Asp Asp Leu Gly Pro Asp Arg Phe | 590 | 595 | 600 | |
| tca aca ctc aca gat gat ccc agc cct aga ctc agt gca caa gct cag | | | | 1873 |
| Ser Thr Leu Thr Asp Asp Pro Ser Pro Arg Leu Ser Ala Gln Ala Gln | 605 | 610 | 615 | 620 |
| gtg gct gag gat att ctg gac aaa tac agg aat gcc att aaa cgg acc | | | | 1921 |
| Val Ala Glu Asp Ile Leu Asp Lys Tyr Arg Asn Ala Ile Lys Arg Thr | 625 | 630 | 635 | |
| agc ccc agt gat gga gca atg gca aac tat gaa agt aca gag gtt atg | | | | 1969 |
| Ser Pro Ser Asp Gly Ala Met Ala Asn Tyr Glu Ser Thr Glu Val Met | 640 | 645 | 650 | |
| ggt gat ggt gaa agt gca cat gat tct ccc cgt gac gaa gca ctg cag | | | | 2017 |
| Gly Asp Gly Glu Ser Ala His Asp Ser Pro Arg Asp Glu Ala Leu Gln | 655 | 660 | 665 | |
| aac atc tcg gct gat gat ctc cca gac tct gca agc caa gca gcc cac | | | | 2065 |
| Asn Ile Ser Ala Asp Asp Leu Pro Asp Ser Ala Ser Gln Ala Ala His | 670 | 675 | 680 | |
| ccg cag gat tca gct ttc tct tac aga gat gca aaa aag aaa ctg agg | | | | 2113 |
| Pro Gln Asp Ser Ala Phe Ser Tyr Arg Asp Ala Lys Lys Lys Leu Arg | 685 | 690 | 695 | 700 |
| ctt gct ctt tgc tct gcg gac tct gtt gcc ttc cca gtg ctg acc cat | | | | 2161 |
| Leu Ala Leu Cys Ser Ala Asp Ser Val Ala Phe Pro Val Leu Thr His | | | | |

| | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|
| | | | | 705 | | | | 710 | | | | 715 | | | | | | | |
| tca | aca | agg | aat | ggt | tta | cca | gac | cac | aca | gac | cca | gaa | gac | aat | gaa | 2209 | | | |
| Ser | Thr | Arg | Asn | Gly | Leu | Pro | Asp | His | Thr | Asp | Pro | Glu | Asp | Asn | Glu | | | | |
| 720 | | | | | | | | 725 | | | | 730 | | | | | | | |
| att | gta | tgc | ttc | tta | aaa | gtt | caa | ata | gct | gaa | gca | att | aat | tta | caa | 2257 | | | |
| Ile | Val | Cys | Phe | Leu | Lys | Val | Gln | Ile | Ala | Glu | Ala | Ile | Asn | Leu | Gln | | | | |
| 735 | | | | | | | | 740 | | | | 745 | | | | | | | |
| gat | aag | aat | cta | atg | gct | caa | ctt | caa | gaa | aca | atg | cgc | tgt | gtg | tgc | 2305 | | | |
| Asp | Lys | Asn | Leu | Met | Ala | Gln | Leu | Gln | Glu | Thr | Met | Arg | Cys | Val | Cys | | | | |
| 750 | | | | | | | | 755 | | | | 760 | | | | | | | |
| cgt | ttt | gat | aat | agg | act | tgt | agg | aaa | ctg | ctg | gct | tcg | att | gct | gag | 2353 | | | |
| Arg | Phe | Asp | Asn | Arg | Thr | Cys | Arg | Lys | Leu | Leu | Ala | Ser | Ile | Ala | Glu | | | | |
| 765 | | | | 770 | | | | | | | | 775 | | | | 780 | | | |
| gac | tac | aga | aaa | aga | gcc | cca | tat | att | gct | tat | ctc | act | cgt | tgt | cga | 2401 | | | |
| Asp | Tyr | Arg | Lys | Arg | Ala | Pro | Tyr | Ile | Ala | Tyr | Leu | Thr | Arg | Cys | Arg | | | | |
| | | | | 785 | | | | 790 | | | | | | | | 795 | | | |
| caa | gga | cta | cag | acc | aca | cag | gct | cac | ctg | gaa | agg | cta | ttg | caa | aga | 2449 | | | |
| Gln | Gly | Leu | Gln | Thr | Thr | Gln | Ala | His | Leu | Glu | Arg | Leu | Leu | Gln | Arg | | | | |
| 800 | | | | | | | | 805 | | | | 810 | | | | | | | |
| gtt | ttg | cgg | gac | aaa | gaa | gtg | gcc | aat | cga | tac | ttt | acc | act | gtc | tgt | 2497 | | | |
| Val | Leu | Arg | Asp | Lys | Glu | Val | Ala | Asn | Arg | Tyr | Phe | Thr | Thr | Val | Cys | | | | |
| 815 | | | | | | | | 820 | | | | 825 | | | | | | | |
| gtg | aga | tta | ctg | ctt | gag | agc | aaa | gaa | aag | aag | atc | agg | gaa | ttc | att | 2545 | | | |
| Val | Arg | Leu | Leu | Leu | Glu | Ser | Lys | Glu | Lys | Lys | Ile | Arg | Glu | Phe | Ile | | | | |
| 830 | | | | | | | | 835 | | | | 840 | | | | | | | |
| caa | gac | ttt | cag | aaa | ctc | acc | gca | gct | gac | gat | aaa | act | gct | cag | gta | 2593 | | | |
| Gln | Asp | Phe | Gln | Lys | Leu | Thr | Ala | Ala | Asp | Asp | Lys | Thr | Ala | Gln | Val | | | | |
| 845 | | | | 850 | | | | | | | | 855 | | | | 860 | | | |
| gaa | gat | ttt | ctg | cag | ttt | ctt | tat | ggt | gca | atg | gcc | cag | gat | gtc | ata | 2641 | | | |
| Glu | Asp | Phe | Leu | Gln | Phe | Leu | Tyr | Gly | Ala | Met | Ala | Gln | Asp | Val | Ile | | | | |
| | | | | 865 | | | | 870 | | | | | | | | 875 | | | |
| tgg | caa | aac | gcg | agt | gaa | gaa | cag | ctt | caa | gat | gca | cag | ctg | gcc | att | 2689 | | | |
| Trp | Gln | Asn | Ala | Ser | Glu | Glu | Gln | Leu | Gln | Asp | Ala | Gln | Leu | Ala | Ile | | | | |
| 880 | | | | | | | | 885 | | | | 890 | | | | | | | |
| gag | cga | agc | gtg | atg | aac | cgg | att | ttc | aag | ctc | gcc | ttc | tac | cct | aat | 2737 | | | |
| Glu | Arg | Ser | Val | Met | Asn | Arg | Ile | Phe | Lys | Leu | Ala | Phe | Tyr | Pro | Asn | | | | |
| 895 | | | | | | | | 900 | | | | 905 | | | | | | | |
| caa | gat | ggg | gac | ata | ctt | cgc | gac | cag | gtt | ctt | cat | gaa | cat | atc | cag | 2785 | | | |
| Gln | Asp | Gly | Asp | Ile | Leu | Arg | Asp | Gln | Val | Leu | His | Glu | His | Ile | Gln | | | | |
| 910 | | | | | | | | 915 | | | | 920 | | | | | | | |
| aga | ttg | tct | aaa | gta | gtg | act | gca | aat | cac | aga | gct | ctt | cag | ata | cca | 2833 | | | |
| Arg | Leu | Ser | Lys | Val | Val | Thr | Ala | Asn | His | Arg | Ala | Leu | Gln | Ile | Pro | | | | |
| 925 | | | | 930 | | | | | | | | 935 | | | | 940 | | | |
| gag | gtt | tat | ctt | cga | gaa | gca | cca | tgg | cca | tct | gca | caa | tca | gaa | atc | 2881 | | | |
| Glu | Val | Tyr | Leu | Arg | Glu | Ala | Pro | | | | | | | | | | | | |

| | 960 | 965 | 970 | |
|--|------|------|------|------|
| ctg aga atg tgc tct acg att atg aac ctc ctg agc ctg gcc aat gag | | | | 2977 |
| Leu Arg Met Cys Ser Thr Ile Met Asn Leu Leu Ser Leu Ala Asn Glu | | | | |
| 975 | | 980 | 985 | |
| gac tct gtc cct gga gcg gat gac ttt gtt cct gtg ttg gtg ttt gtg | | | | 3025 |
| Asp Ser Val Pro Gly Ala Asp Asp Phe Val Pro Val Leu Val Phe Val | | | | |
| 990 | | 995 | 1000 | |
| ttg ata aag gca aat cca ccc tgt ttg ctg tct act gtg cag tat atc | | | | 3073 |
| Leu Ile Lys Ala Asn Pro Pro Cys Leu Leu Ser Thr Val Gln Tyr Ile | | | | |
| 1005 | 1010 | 1015 | 1020 | |
| agt agc ttt tat gct agc tgt ctg tct gga gag gag tcc tat tgg tgg | | | | 3121 |
| Ser Ser Phe Tyr Ala Ser Cys Leu Ser Gly Glu Glu Ser Tyr Trp Trp | | | | |
| 1025 | 1030 | 1035 | | |
| atg cag ttc aca gca gca gta gaa ttc att aaa acc atc gat gac cga | | | | 3169 |
| Met Gln Phe Thr Ala Ala Val Glu Phe Ile Lys Thr Ile Asp Asp Arg | | | | |
| 1040 | 1045 | 1050 | | |
| aag tga ccaagaccaa ggcccaccaa ggcagcagac tgттаатсag асааасаgаt | | | | 3225 |
| Lys * | | | | |
| ctctgagaag gtgcatcagc tgctttgaag gctgaagatt gttttgtatg atactgcaca | | | | 3285 |
| gcatcaggca ttttaaagca gatctttact aaacaggtta atgagctaac aagcaggttc | | | | 3345 |
| tctcgtcttt gggctctttc ctttctgagt tgcatattct attttcttgt cccaagtag | | | | 3405 |
| agactagtag tacaaaaagg gaccacattt ttcaagtatt tctaagtata aaaaacaaaa | | | | 3465 |
| caaaaatctc ttaggaaatg tctagacctc cattcttgga ttccctttct ttccttttat | | | | 3525 |
| tttaaaaaag aacagtaccc ctcttttaag atgctgtctt acattaatga gcatctaata | | | | 3585 |
| gaaagaaggt atgagttgca ctgaggatta gaatagtgg gcgttagtgg cattatctat | | | | 3645 |
| aaatacactc acctaaattg aaagctaaga aggaaatgta aatataatat atatttatat | | | | 3705 |
| ttgatgtaat atggacatct gcagattcta ataaacaagg actattgctg atagtaggct | | | | 3765 |
| gtgacatact gtcttgtaga atgggtttcct tgacaaaatt taagctgagc ttaaaagcaa | | | | 3825 |
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| <400> 777 | |
| gagagaagat aga atg gct ctt gac aat tta ttg gca aac cta ccc ccg | 49 |
| Met Ala Leu Asp Asn Leu Leu Ala Asn Leu Pro Pro | |
| 1 5 10 | |

| | |
|---|-----|
| gcc aag cca gga aaa agt agc agt tta gaa atg act ccc tac aat aca Ala Lys Pro Gly Lys Ser Ser Ser Leu Glu Met Thr Pro Tyr Asn Thr 15 20 25 | 97 |
| cct cag cta tct cca gca acc act cca gca aat aaa aag aat cga tta Pro Gln Leu Ser Pro Ala Thr Thr Pro Ala Asn Lys Lys Asn Arg Leu 30 35 40 | 145 |
| cct ata gca act cgg agc aga agc cgc acc aat atg cta atg gac cta Pro Ile Ala Thr Arg Ser Arg Ser Arg Thr Asn Met Leu Met Asp Leu 45 50 55 60 | 193 |
| cat atg gac cat gaa gga tca tct caa gaa acc atc cag gag gtg caa His Met Asp His Glu Gly Ser Ser Gln Glu Thr Ile Gln Glu Val Gln 65 70 75 | 241 |
| cca gaa gag gtg ttg gtc att tcc tta ggt aca ggt ccc cag ctt act Pro Glu Glu Val Leu Val Ile Ser Leu Gly Thr Gly Pro Gln Leu Thr 80 85 90 | 289 |
| cca ggg atg atg tca gaa aat gag gtc cta aac atg cag ctt tcg gat Pro Gly Met Met Ser Glu Asn Glu Val Leu Asn Met Gln Leu Ser Asp 95 100 105 | 337 |
| gga gga caa gga gat gtc cct gtt gat gaa aac aaa ctc cat ggt aaa Gly Gly Gln Gly Asp Val Pro Val Asp Glu Asn Lys Leu His Gly Lys 110 115 120 | 385 |
| cct gat aaa acc ttg cgc ttt tcc ctc tgc agt gat aat ctg gaa gga Pro Asp Lys Thr Leu Arg Phe Ser Leu Cys Ser Asp Asn Leu Glu Gly 125 130 135 140 | 433 |
| ata tct gaa ggt cct tca aat cgc tcc aat tca gtg tcc tcc cta gac Ile Ser Glu Gly Pro Ser Asn Arg Ser Asn Ser Val Ser Ser Leu Asp 145 150 155 | 481 |
| cta gaa gga gag tct gtg tca gaa ctt gga gca gga cct tct ggc agt Leu Glu Gly Glu Ser Val Ser Glu Leu Gly Ala Gly Pro Ser Gly Ser 160 165 170 | 529 |
| aat gga gtt gaa gct cta cag ctg tta gaa cat gag caa gct aca aca Asn Gly Val Glu Ala Leu Gln Leu Leu Glu His Glu Gln Ala Thr Thr 175 180 185 | 577 |
| cag gat aac ctt gat gat aag cta agg aag ttt gaa att cgt gac atg Gln Asp Asn Leu Asp Asp Lys Leu Arg Lys Phe Glu Ile Arg Asp Met 190 195 200 | 625 |
| atg gga tta aca gat gat agg gac ata tca gaa aca gtg agt gag acc Met Gly Leu Thr Asp Asp Arg Asp Ile Ser Glu Thr Val Ser Glu Thr 205 210 215 220 | 673 |
| tgg agt aca gac gtc ttg gga agt gac ttt gac cct aat att gat gaa Trp Ser Thr Asp Val Leu Gly Ser Asp Phe Asp Pro Asn Ile Asp Glu 225 230 235 | 721 |
| gat cgc ttg caa gaa att gca ggt gct gca gca gag aac atg tta ggc Asp Arg Leu Gln Glu Ile Ala Gly Ala Ala Ala Glu Asn Met Leu Gly 240 245 250 | 769 |
| agt ttg ctg tgc ctc cca ggt tca ggg tca gtg ctt ctt gac ccc tgc Ser Leu Leu Cys Leu Pro Gly Ser Gly Ser Val Leu Leu Asp Pro Cys 255 260 265 | 817 |

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|---|------|
| act ggt tct acc ata tca gag aca aca agt gaa gct tgg agt gta gag Thr Gly Ser Thr Ile Ser Glu Thr Thr Ser Glu Ala Trp Ser Val Glu 270 275 280 | 865 |
| gta ttg cca agt gac tca gag gcc cca gac cta aag cag gag gag cgt Val Leu Pro Ser Asp Ser Glu Ala Pro Asp Leu Lys Gln Glu Glu Arg 285 290 295 300 | 913 |
| ctg caa gaa ctg gag agc tgt tct gga ctg ggt agc aca tct gat gat Leu Gln Glu Leu Glu Ser Cys Ser Gly Leu Gly Ser Thr Ser Asp Asp 305 310 315 | 961 |
| acg gat gtc agg gag gtc agt tcc cgc ccc agc aca cca ggc ctc agt Thr Asp Val Arg Glu Val Ser Ser Arg Pro Ser Thr Pro Gly Leu Ser 320 325 330 | 1009 |
| gtt gtg tcc ggc ata agt gca acc tct gag gat att ccc aat aag att Val Val Ser Gly Ile Ser Ala Thr Ser Glu Asp Ile Pro Asn Lys Ile 335 340 345 | 1057 |
| gaa gac ctg aga tct gag tgc agc tct gat ttt ggg ggt aaa gat tct Glu Asp Leu Arg Ser Glu Cys Ser Ser Asp Phe Gly Gly Lys Asp Ser 350 355 360 | 1105 |
| gtc act agt cca gac atg gat gaa ata act cac ggt gcc cac cag ctg Val Thr Ser Pro Asp Met Asp Glu Ile Thr His Gly Ala His Gln Leu 365 370 375 380 | 1153 |
| acc tct cct cct tct cag tca gag tct ctg ctg gcc atg ttt gat cca Thr Ser Pro Pro Ser Gln Ser Glu Ser Leu Leu Ala Met Phe Asp Pro 385 390 395 | 1201 |
| ctg tct tca cat gaa ggg gct tct gct gtg gta agg cca aag gtt cac Leu Ser Ser His Glu Gly Ala Ser Ala Val Val Arg Pro Lys Val His 400 405 410 | 1249 |
| tat gct agg cca tcg cat cca cca cca gat ccc cca atc ctg gaa gga Tyr Ala Arg Pro Ser His Pro Pro Pro Asp Pro Pro Ile Leu Glu Gly 415 420 425 | 1297 |
| gct gtg gga gga aat gag gcc agg ttg cca aac ttt ggt tcc cat gtt Ala Val Gly Gly Asn Glu Ala Arg Leu Pro Asn Phe Gly Ser His Val 430 435 440 | 1345 |
| tta act cca gct gaa atg gag gca ttc aag caa agg cat tct tac cct Leu Thr Pro Ala Glu Met Glu Ala Phe Lys Gln Arg His Ser Tyr Pro 445 450 455 460 | 1393 |
| gag aga cta gtt cga agc agg agc tct gat ata gta tct tct gtc cgg Glu Arg Leu Val Arg Ser Arg Ser Ser Asp Ile Val Ser Ser Val Arg 465 470 475 | 1441 |
| aga ccc atg agt gac ccc agc tgg aac cgg cgt cca gga aat gaa gag Arg Pro Met Ser Asp Pro Ser Trp Asn Arg Arg Pro Gly Asn Glu Glu 480 485 490 | 1489 |
| cga gaa ctc cct cca gct gca gcc att ggt gct act tct ttg gtg gct Arg Glu Leu Pro Pro Ala Ala Ala Ile Gly Ala Thr Ser Leu Val Ala 495 500 505 | 1537 |
| gca cct cat tca tca tct tca tcc ccg agt aag gac tcc tca aga gga Ala Pro His Ser Ser Ser Ser Ser Pro Ser Lys Asp Ser Ser Arg Gly 510 515 520 | 1585 |

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|---|------|
| gag act gaa gaa cgc aaa gat agc gat gat gag aaa tca gac agg aac | 1633 |
| Glu Thr Glu Glu Arg Lys Asp Ser Asp Asp Glu Lys Ser Asp Arg Asn | |
| 525 530 535 540 | |
| aga cct tgg tgg aga aaa cgt ttt gtt tca gcc atg cct aaa gct cct | 1681 |
| Arg Pro Trp Trp Arg Lys Arg Phe Val Ser Ala Met Pro Lys Ala Pro | |
| 545 550 555 | |
| ata cca ttt aga aag aaa gaa aaa caa gaa aaa gac aaa gat gat ctg | 1729 |
| Ile Pro Phe Arg Lys Lys Glu Lys Gln Glu Lys Asp Lys Asp Asp Leu | |
| 560 565 570 | |
| ggg cct gac aga ttc tca aca ctc aca gat gat ccc agc cct aga ctc | 1777 |
| Gly Pro Asp Arg Phe Ser Thr Leu Thr Asp Asp Pro Ser Pro Arg Leu | |
| 575 580 585 | |
| agt gca caa gct cag gtg gct gag gat att ctg gac aaa tac agg aat | 1825 |
| Ser Ala Gln Ala Gln Val Ala Glu Asp Ile Leu Asp Lys Tyr Arg Asn | |
| 590 595 600 | |
| gcc att aaa cgg acc agc ccc agt gat gga gca atg gca aac tat gaa | 1873 |
| Ala Ile Lys Arg Thr Ser Pro Ser Asp Gly Ala Met Ala Asn Tyr Glu | |
| 605 610 615 620 | |
| agt aca gag gtt atg ggt gat ggt gaa agt gca cat gat tct ccc cgt | 1921 |
| Ser Thr Glu Val Met Gly Asp Gly Glu Ser Ala His Asp Ser Pro Arg | |
| 625 630 635 | |
| gac gaa gca ctg cag aac atc tcg gct gat gat ctc cca gac tct gca | 1969 |
| Asp Glu Ala Leu Gln Asn Ile Ser Ala Asp Asp Leu Pro Asp Ser Ala | |
| 640 645 650 | |
| agc caa gca gcc cac ccg cag gat tca gct ttc tct tac aga gat gca | 2017 |
| Ser Gln Ala Ala His Pro Gln Asp Ser Ala Phe Ser Tyr Arg Asp Ala | |
| 655 660 665 | |
| aaa aag aaa ctg agg ctt gct ctt tgc tct gcg gac tct gtt gcc ttc | 2065 |
| Lys Lys Lys Leu Arg Leu Ala Leu Cys Ser Ala Asp Ser Val Ala Phe | |
| 670 675 680 | |
| cca gtg ctg acc cat tca aca agg aat ggt tta cca gac cac aca gac | 2113 |
| Pro Val Leu Thr His Ser Thr Arg Asn Gly Leu Pro Asp His Thr Asp | |
| 685 690 695 700 | |
| cca gaa gac aat gaa att gta tgc ttc tta aaa gtt caa ata gct gaa | 2161 |
| Pro Glu Asp Asn Glu Ile Val Cys Phe Leu Lys Val Gln Ile Ala Glu | |
| 705 710 715 | |
| gca att aat tta caa gat aag aat cta atg gct caa ctt caa gaa aca | 2209 |
| Ala Ile Asn Leu Gln Asp Lys Asn Leu Met Ala Gln Leu Gln Glu Thr | |
| 720 725 730 | |
| atg cgc tgt gtg tgc cgt ttt gat aat agg act tgt agg aaa ctg ctg | 2257 |
| Met Arg Cys Val Cys Arg Phe Asp Asn Arg Thr Cys Arg Lys Leu Leu | |
| 735 740 745 | |
| gct tcg att gct gag gac tac aga aaa aga gcc cca tat att gct tat | 2305 |
| Ala Ser Ile Ala Glu Asp Tyr Arg Lys Arg Ala Pro Tyr Ile Ala Tyr | |
| 750 755 760 | |
| ctc act cgt tgt cga caa gga cta cag acc aca cag gct cac ctg gaa | 2353 |
| Leu Thr Arg Cys Arg Gln Gly Leu Gln Thr Thr Gln Ala His Leu Glu | |
| 765 770 775 780 | |

| | |
|---|------|
| agg cta ttg caa aga gtt ttg cgg gac aaa gaa gtg gcc aat cga tac | 2401 |
| Arg Leu Leu Gln Arg Val Leu Arg Asp Lys Glu Val Ala Asn Arg Tyr | |
| 785 790 795 | |
| ttt acc act gtc tgt gtg aga tta ctg ctt gag agc aaa gaa aag aag | 2449 |
| Phe Thr Thr Val Cys Val Arg Leu Leu Glu Ser Lys Glu Lys Lys | |
| 800 805 810 | |
| atc agg gaa ttc att caa gac ttt cag aaa ctc acc gca gct gac gat | 2497 |
| Ile Arg Glu Phe Ile Gln Asp Phe Gln Lys Leu Thr Ala Ala Asp Asp | |
| 815 820 825 | |
| aaa act gct cag gta gaa gat ttt ctg cag ttt ctt tat ggt gca atg | 2545 |
| Lys Thr Ala Gln Val Glu Asp Phe Leu Gln Phe Leu Tyr Gly Ala Met | |
| 830 835 840 | |
| gcc cag gat gtc ata tgg caa aac gcg agt gaa gaa cag ctt caa gat | 2593 |
| Ala Gln Asp Val Ile Trp Gln Asn Ala Ser Glu Glu Gln Leu Gln Asp | |
| 845 850 855 860 | |
| gca cag ctg gcc att gag cga agc gtg atg aac cgg att ttc aag ctc | 2641 |
| Ala Gln Leu Ala Ile Glu Arg Ser Val Met Asn Arg Ile Phe Lys Leu | |
| 865 870 875 | |
| gcc ttc tac cct aat caa gat ggg gac ata ctt cgc gac cag gtt ctt | 2689 |
| Ala Phe Tyr Pro Asn Gln Asp Gly Asp Ile Leu Arg Asp Gln Val Leu | |
| 880 885 890 | |
| cat gaa cat atc cag aga ttg tct aaa gta gtg act gca aat cac aga | 2737 |
| His Glu His Ile Gln Arg Leu Ser Lys Val Val Thr Ala Asn His Arg | |
| 895 900 905 | |
| gct ctt cag ata cca gag gtt tat ctt cga gaa gca cca tgg cca tct | 2785 |
| Ala Leu Gln Ile Pro Glu Val Tyr Leu Arg Glu Ala Pro Trp Pro Ser | |
| 910 915 920 | |
| gca caa tca gaa atc agg aca ata agt gct tat aaa acc ccc cgg gac | 2833 |
| Ala Gln Ser Glu Ile Arg Thr Ile Ser Ala Tyr Lys Thr Pro Arg Asp | |
| 925 930 935 940 | |
| aaa gtg cag tgc atc ctg aga atg tgc tct acg att atg aac ctc ctg | 2881 |
| Lys Val Gln Cys Ile Leu Arg Met Cys Ser Thr Ile Met Asn Leu Leu | |
| 945 950 955 | |
| agc ctg gcc aat gag gac tct gtc cct gga gcg gat gac ttt gtt cct | 2929 |
| Ser Leu Ala Asn Glu Asp Ser Val Pro Gly Ala Asp Asp Phe Val Pro | |
| 960 965 970 | |
| gtg ttg gtg ttt gtg ttg ata aag gca aat cca ccc tgt ttg ctg tct | 2977 |
| Val Leu Val Phe Val Leu Ile Lys Ala Asn Pro Pro Cys Leu Leu Ser | |
| 975 980 985 | |
| act gtg cag tat atc agt agc ttt tat gct agc tgt ctg tct gga gag | 3025 |
| Thr Val Gln Tyr Ile Ser Ser Phe Tyr Ala Ser Cys Leu Ser Gly Glu | |
| 990 995 1000 | |
| gag tcc tat tgg tgg atg cag ttc aca gca gca gta gaa ttc att aaa | 3073 |
| Glu Ser Tyr Trp Trp Met Gln Phe Thr Ala Ala Val Glu Phe Ile Lys | |
| 1005 1010 1015 1020 | |
| acc atc gat gac cga aag tga cc aagaccaagg cccaccaagg cagcagactg | 3126 |
| Thr Ile Asp Asp Arg Lys * | |
| 1025 | |

ttaatcagac aaacagatct ctgagaaggt gcatcagctg ctttgaaggc tgaagattgt 3186
 tttgtatgat actgcacagc atcaggcatt ttaaagcaga tctttactaa acagggttaat 3246
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<220>
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 gcc aag cca gga aaa agt agc agt tta gaa atg act ccc tac aat aca 97
 Ala Lys Pro Gly Lys Ser Ser Ser Leu Glu Met Thr Pro Tyr Asn Thr
 15 20 25
 cct cag cta tct cca gca acc act cca gca aat aaa aag aat cga tta 145
 Pro Gln Leu Ser Pro Ala Thr Thr Pro Ala Asn Lys Lys Asn Arg Leu
 30 35 40
 cct ata gca act cgg agc aga agc cgc acc aat atg cta atg gac cta 193
 Pro Ile Ala Thr Arg Ser Arg Ser Arg Thr Asn Met Leu Met Asp Leu
 45 50 55 60
 cat atg gac cat gaa gga tca tct caa gaa acc atc cag gag gtg caa 241
 His Met Asp His Glu Gly Ser Ser Gln Glu Thr Ile Gln Glu Val Gln
 65 70 75
 cca gaa gag gtg ttg gtc att tcc tta ggt aca ggt ccc cag ctt act 289
 Pro Glu Glu Val Leu Val Ile Ser Leu Gly Thr Gly Pro Gln Leu Thr
 80 85 90
 cca ggg atg atg tca gaa aat gag gtc cta aac atg cag ctt tcg gat 337
 Pro Gly Met Met Ser Glu Asn Glu Val Leu Asn Met Gln Leu Ser Asp
 95 100 105

| | |
|---|------|
| gga gga caa gga gat gtc cct gtt gat gaa aac aaa ctc cat ggt aaa Gly Gly Gln Gly Asp Val Pro Val Asp Glu Asn Lys Leu His Gly Lys 110 115 120 | 385 |
| cct gat aaa acc ttg cgc ttt tcc ctc tgc agt gat aat ctg gaa gga Pro Asp Lys Thr Leu Arg Phe Ser Leu Cys Ser Asp Asn Leu Glu Gly 125 130 135 140 | 433 |
| ata tct gaa ggt cct tca aat cgc tcc aat tca gtg tcc tcc cta gac Ile Ser Glu Gly Pro Ser Asn Arg Ser Asn Ser Val Ser Ser Leu Asp 145 150 155 | 481 |
| cta gaa gga gag tct gtg tca gaa ctt gga gca gga cct tct ggc agt Leu Glu Gly Glu Ser Val Ser Glu Leu Gly Ala Gly Pro Ser Gly Ser 160 165 170 | 529 |
| aat gga gtt gaa gct cta cag ctg tta gaa cat gag caa gct aca aca Asn Gly Val Glu Ala Leu Gln Leu Leu Glu His Glu Gln Ala Thr Thr 175 180 185 | 577 |
| cag gat aac ctt gat gat aag cta agg aag ttt gaa att cgt gac atg Gln Asp Asn Leu Asp Asp Lys Leu Arg Lys Phe Glu Ile Arg Asp Met 190 195 200 | 625 |
| atg gga tta aca gat gat agg gac ata tca gaa aca gtg agt gag acc Met Gly Leu Thr Asp Asp Arg Asp Ile Ser Glu Thr Val Ser Glu Thr 205 210 215 220 | 673 |
| tgg agt aca gac gtc ttg gga agt gac ttt gac cct aat att gat gaa Trp Ser Thr Asp Val Leu Gly Ser Asp Phe Asp Pro Asn Ile Asp Glu 225 230 235 | 721 |
| gat cgc ttg caa gaa att gca ggt gct gca gca gag aac atg tta ggc Asp Arg Leu Gln Glu Ile Ala Gly Ala Ala Ala Glu Asn Met Leu Gly 240 245 250 | 769 |
| agt ttg ctg tgc ctc cca ggt tca ggg tca gtg ctt ctt gac ccc tgc Ser Leu Leu Cys Leu Pro Gly Ser Gly Ser Val Leu Leu Asp Pro Cys 255 260 265 | 817 |
| act ggt tct acc ata tca gag aca aca agt gaa gct tgg agt gta gag Thr Gly Ser Thr Ile Ser Glu Thr Thr Ser Glu Ala Trp Ser Val Glu 270 275 280 | 865 |
| gta ttg cca agt gac tca gag gcc cca gac cta aag cag gag gag cgt Val Leu Pro Ser Asp Ser Glu Ala Pro Asp Leu Lys Gln Glu Glu Arg 285 290 295 300 | 913 |
| ctg caa gaa ctg gag agc tgt tct gga ctg ggt agc aca tct gat gat Leu Gln Glu Leu Glu Ser Cys Ser Gly Leu Gly Ser Thr Ser Asp Asp 305 310 315 | 961 |
| acg gat gtc agg gag gtc agt tcc cgc ccc agc aca cca ggc ctc agt Thr Asp Val Arg Glu Val Ser Ser Arg Pro Ser Thr Pro Gly Leu Ser 320 325 330 | 1009 |
| gtt gtg tcc ggc ata agt gca acc tct gag gat att ccc aat aag att Val Val Ser Gly Ile Ser Ala Thr Ser Glu Asp Ile Pro Asn Lys Ile 335 340 345 | 1057 |
| gaa gac ctg aga tct gag tgc agc tct gat ttt ggg ggt aaa gat tct Glu Asp Leu Arg Ser Glu Cys Ser Ser Asp Phe Gly Gly Lys Asp Ser 350 355 360 | 1105 |

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|---|------|
| gtc act agt cca gac atg gat gaa ata act cac gat ttt ctt tat ata | 1153 |
| Val Thr Ser Pro Asp Met Asp Glu Ile Thr His Asp Phe Leu Tyr Ile | |
| 365 370 375 380 | |
| ctt cag cca aaa caa cat ttt caa cac att gaa gca gaa gca gac atg | 1201 |
| Leu Gln Pro Lys Gln His Phe Gln His Ile Glu Ala Glu Ala Asp Met | |
| 385 390 395 | |
| aga atc cag ctg tct tct agt gcc cac cag ctg acc tct cct cct tct | 1249 |
| Arg Ile Gln Leu Ser Ser Ser Ala His Gln Leu Thr Ser Pro Pro Ser | |
| 400 405 410 | |
| cag tca gag tct ctg ctg gcc atg ttt gat cca ctg tct tca cat gaa | 1297 |
| Gln Ser Glu Ser Leu Leu Ala Met Phe Asp Pro Leu Ser Ser His Glu | |
| 415 420 425 | |
| ggg gct tct gct gtg gta agg cca aag gtt cac tat gct agg cca tcg | 1345 |
| Gly Ala Ser Ala Val Val Arg Pro Lys Val His Tyr Ala Arg Pro Ser | |
| 430 435 440 | |
| cat cca cca cca gat ccc cca atc ctg gaa gga gct gtg gga gga aat | 1393 |
| His Pro Pro Pro Asp Pro Pro Ile Leu Glu Gly Ala Val Gly Gly Asn | |
| 445 450 455 460 | |
| gag gcc agg ttg cca aac ttt ggt tcc cat gtt tta act cca gct gaa | 1441 |
| Glu Ala Arg Leu Pro Asn Phe Gly Ser His Val Leu Thr Pro Ala Glu | |
| 465 470 475 | |
| atg gag gca ttc aag caa agg cat tct tac cct gag aga cta gtt cga | 1489 |
| Met Glu Ala Phe Lys Gln Arg His Ser Tyr Pro Glu Arg Leu Val Arg | |
| 480 485 490 | |
| agc agg agc tct gat ata gta tct tct gtc cgg aga ccc atg agt gac | 1537 |
| Ser Arg Ser Ser Asp Ile Val Ser Ser Val Arg Arg Pro Met Ser Asp | |
| 495 500 505 | |
| ccc agc tgg aac cgg cgt cca gga aat gaa gag cga gaa ctc cct cca | 1585 |
| Pro Ser Trp Asn Arg Arg Pro Gly Asn Glu Glu Arg Glu Leu Pro Pro | |
| 510 515 520 | |
| gct gca gcc att ggt gct act tct ttg gtg gct gca cct cat tca tca | 1633 |
| Ala Ala Ala Ile Gly Ala Thr Ser Leu Val Ala Ala Pro His Ser Ser | |
| 525 530 535 540 | |
| tct tca tcc ccg agt aag gac tcc tca aga gga gag act gaa gaa cgc | 1681 |
| Ser Ser Ser Pro Ser Lys Asp Ser Ser Arg Gly Glu Thr Glu Glu Arg | |
| 545 550 555 | |
| aaa gat agc gat gat gag aaa tca gac agg aac aga cct tgg tgg aga | 1729 |
| Lys Asp Ser Asp Asp Glu Lys Ser Asp Arg Asn Arg Pro Trp Trp Arg | |
| 560 565 570 | |
| aaa cgt ttt gtt tca gcc atg cct aaa gat gat ccc agc cct aga ctc | 1777 |
| Lys Arg Phe Val Ser Ala Met Pro Lys Asp Asp Pro Ser Pro Arg Leu | |
| 575 580 585 | |
| agt gca caa gct cag gtg gct gag gat att ctg gac aaa tac agg aat | 1825 |
| Ser Ala Gln Ala Gln Val Ala Glu Asp Ile Leu Asp Lys Tyr Arg Asn | |
| 590 595 600 | |
| gcc att aaa cgg acc agc ccc agt gat gga gca atg gca aac tat gaa | 1873 |
| Ala Ile Lys Arg Thr Ser Pro Ser Asp Gly Ala Met Ala Asn Tyr Glu | |
| 605 610 615 620 | |

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|---|------|
| agt aca gag gtt atg ggt gat ggt gaa agt gca cat gat tct ccc cgt | 1921 |
| Ser Thr Glu Val Met Gly Asp Gly Glu Ser Ala His Asp Ser Pro Arg | |
| 625 630 635 | |
| gac gaa gca ctg cag aac atc tcg gct gat gat ctc cca gac tct gca | 1969 |
| Asp Glu Ala Leu Gln Asn Ile Ser Ala Asp Asp Leu Pro Asp Ser Ala | |
| 640 645 650 | |
| agc caa gca gcc cac ccg cag gat tca gct ttc tct tac aga gat gca | 2017 |
| Ser Gln Ala Ala His Pro Gln Asp Ser Ala Phe Ser Tyr Arg Asp Ala | |
| 655 660 665 | |
| aaa aag aaa ctg agg ctt gct ctt tgc tct gcg gac tct gtt gcc ttc | 2065 |
| Lys Lys Lys Leu Arg Leu Ala Leu Cys Ser Ala Asp Ser Val Ala Phe | |
| 670 675 680 | |
| cca gtg ctg acc cat tca aca agg aat ggt tta cca gac cac aca gac | 2113 |
| Pro Val Leu Thr His Ser Thr Arg Asn Gly Leu Pro Asp His Thr Asp | |
| 685 690 695 700 | |
| cca gaa gac aat gaa att gta tgc ttc tta aaa gtt caa ata gct gaa | 2161 |
| Pro Glu Asp Asn Glu Ile Val Cys Phe Leu Lys Val Gln Ile Ala Glu | |
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| gca att aat tta caa gat aag aat cta atg gct caa ctt caa gaa aca | 2209 |
| Ala Ile Asn Leu Gln Asp Lys Asn Leu Met Ala Gln Leu Gln Glu Thr | |
| 720 725 730 | |
| atg cgc tgt gtg tgc cgt ttt gat aat agg act tgt agg aaa ctg ctg | 2257 |
| Met Arg Cys Val Cys Arg Phe Asp Asn Arg Thr Cys Arg Lys Leu Leu | |
| 735 740 745 | |
| gct tcg att gct gag gac tac aga aaa aga gcc cca tat att gct tat | 2305 |
| Ala Ser Ile Ala Glu Asp Tyr Arg Lys Arg Ala Pro Tyr Ile Ala Tyr | |
| 750 755 760 | |
| ctc act cgt tgt cga caa gga cta cag acc aca cag gct cac ctg gaa | 2353 |
| Leu Thr Arg Cys Arg Gln Gly Leu Gln Thr Thr Gln Ala His Leu Glu | |
| 765 770 775 780 | |
| agg cta ttg caa aga gtt ttg cgg gac aaa gaa gtg gcc aat cga tac | 2401 |
| Arg Leu Leu Gln Arg Val Leu Arg Asp Lys Glu Val Ala Asn Arg Tyr | |
| 785 790 795 | |
| ttt acc act gtc tgt gtg aga tta ctg ctt gag agc aaa gaa aag aag | 2449 |
| Phe Thr Thr Val Cys Val Arg Leu Leu Glu Ser Lys Glu Lys Lys | |
| 800 805 810 | |
| atc agg gaa ttc att caa gac ttt cag aaa ctc acc gca gct gac gat | 2497 |
| Ile Arg Glu Phe Ile Gln Asp Phe Gln Lys Leu Thr Ala Ala Asp Asp | |
| 815 820 825 | |
| aaa act gct cag gta gaa gat ttt ctg cag ttt ctt tat ggt gca atg | 2545 |
| Lys Thr Ala Gln Val Glu Asp Phe Leu Gln Phe Leu Tyr Gly Ala Met | |
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| gcc cag gat gtc ata tgg caa aac gcg agt gaa gaa cag ctt caa gat | 2593 |
| Ala Gln Asp Val Ile Trp Gln Asn Ala Ser Glu Glu Gln Leu Gln Asp | |
| 845 850 855 860 | |
| gca cag ctg gcc att gag cga agc gtg atg aac cgg att ttc aag ctc | 2641 |
| Ala Gln Leu Ala Ile Glu Arg Ser Val Met Asn Arg Ile Phe Lys Leu | |
| 865 870 875 | |

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 His Glu His Ile Gln Arg Leu Ser Lys Val Val Thr Ala Asn His Arg
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| ttt gaa gac ccc ctt ctg ctc cct tgt gct cac agc ctc tgc ttc agc | 96 |
| Phe Glu Asp Pro Leu Leu Leu Pro Cys Ala His Ser Leu Cys Phe Ser | |
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| tgt gcc cat cgc att ttg gta tca agc tgc agc tct ggt gaa tcc att | 144 |
| Cys Ala His Arg Ile Leu Val Ser Ser Cys Ser Ser Gly Glu Ser Ile | |
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| gaa ccc att act gct ttc cag tgt cct acc tgc agg tat gtt atc tcg | 192 |
| Glu Pro Ile Thr Ala Phe Gln Cys Pro Thr Cys Arg Tyr Val Ile Ser | |
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| Leu Asn His Arg Gly Leu Asp Gly Leu Lys Arg Asn Val Thr Leu Gln | |
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| aac att att gat cgc ttc cag aag gct tca gtc agt ggg ccc aat tcc | 288 |
| Asn Ile Ile Asp Arg Phe Gln Lys Ala Ser Val Ser Gly Pro Asn Ser | |
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| cct agt gag agc cgc cgg gaa agg act tac agg ccc acc act gcc atg | 336 |
| Pro Ser Glu Ser Arg Arg Glu Arg Thr Tyr Arg Pro Thr Thr Ala Met | |
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| Ser Ser Glu Arg Ile Ala Cys Gln Phe Cys Glu Gln Asp Pro Pro Arg | |
| 115 120 125 | |
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| Asp Ala Val Lys Thr Cys Ile Thr Cys Glu Val Ser Tyr Cys Asp Arg | |
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| Cys Leu Arg Ala Thr His Pro Asn Lys Lys Pro Phe Thr Ser His Arg | |
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| Leu Val Glu Pro Val Pro Asp Thr His Leu Arg Gly Ile Thr Cys Leu | |
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| gac cat gag aat gag aaa gtg aac atg tac tgt gta tct gat gac caa | 576 |
| Asp His Glu Asn Glu Lys Val Asn Met Tyr Cys Val Ser Asp Asp Gln | |
| 180 185 190 | |
| ttg atc tgt gcc tta tgc aaa ctg gtg ggt cgt cac cga gac cat cag | 624 |
| Leu Ile Cys Ala Leu Cys Lys Leu Val Gly Arg His Arg Asp His Gln | |
| 195 200 205 | |
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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Val | Ala | Ser | Leu | Asn | Asp | Arg | Phe | Glu | Lys | Leu | Lys | Gln | Thr | Leu | Glu | |
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| Met | Ala | Lys | Leu | Ile | Gln | Ile | Cys | Gln | Gln | Val | Glu | Val | Asn | Thr | Ala | |
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| Met | His | Glu | Ala | Lys | Leu | Met | Glu | Glu | Cys | Asp | Glu | Leu | Val | Glu | Ile | |
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| atc | cag | cag | agg | aag | caa | atg | atc | gct | gtc | aaa | atc | aaa | gag | aca | aag | 864 |
| Ile | Gln | Gln | Arg | Lys | Gln | Met | Ile | Ala | Val | Lys | Ile | Lys | Glu | Thr | Lys | |
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| Val | Met | Lys | Leu | Arg | Lys | Leu | Ala | Gln | Gln | Val | Ala | Asn | Cys | Arg | Gln | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| tgt | ctt | gaa | cgg | tca | aca | gtc | ctc | atc | aac | caa | gct | gag | cat | atc | ctg | 960 |
| Cys | Leu | Glu | Arg | Ser | Thr | Val | Leu | Ile | Asn | Gln | Ala | Glu | His | Ile | Leu | |
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| aaa | gaa | aat | gac | cag | gca | cgg | ttt | cta | cag | tct | gca | aaa | aat | att | gct | 1008 |
| Lys | Glu | Asn | Asp | Gln | Ala | Arg | Phe | Leu | Gln | Ser | Ala | Lys | Asn | Ile | Ala | |
| | | | | 325 | | | | | 330 | | | | | 335 | | |
| gag | agg | gtc | gct | atg | gca | act | gca | tct | tct | caa | gtt | ctg | att | cca | gac | 1056 |
| Glu | Arg | Val | Ala | Met | Ala | Thr | Ala | Ser | Ser | Gln | Val | Leu | Ile | Pro | Asp | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| atc | aat | ttt | aat | gat | gcc | ttt | gaa | aac | ttt | gct | tta | gat | ttt | tcc | aga | 1104 |
| Ile | Asn | Phe | Asn | Asp | Ala | Phe | Glu | Asn | Phe | Ala | Leu | Asp | Phe | Ser | Arg | |
| | | 355 | | | | | 360 | | | | | 365 | | | | |
| gaa | aag | aaa | ctg | cta | gag | ggg | tta | gat | tat | tta | aca | gcc | cca | aac | cca | 1152 |
| Glu | Lys | Lys | Leu | Leu | Glu | Gly | Leu | Asp | Tyr | Leu | Thr | Ala | Pro | Asn | Pro | |
| | 370 | | | | | 375 | | | | | 380 | | | | | |
| cca | tct | atc | cga | gaa | gaa | ctc | tgt | act | gcc | tcc | cat | gac | acc | att | aca | 1200 |
| Pro | Ser | Ile | Arg | Glu | Glu | Leu | Cys | Thr | Ala | Ser | His | Asp | Thr | Ile | Thr | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| gtc | cac | tgg | atc | tcg | gat | gat | gag | ttc | agc | atc | agc | tcc | tat | gag | ctt | 1248 |
| Val | His | Trp | Ile | Ser | Asp | Asp | Glu | Phe | Ser | Ile | Ser | Ser | Tyr | Glu | Leu | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| cag | tac | acc | ata | ttc | act | ggc | cag | gct | aac | ttc | atc | agc | ctg | tat | aat | 1296 |
| Gln | Tyr | Thr | Ile | Phe | Thr | Gly | Gln | Ala | Asn | Phe | Ile | Ser | Leu | Tyr | Asn | |
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| Ser | Val | Asp | Ser | Trp | Met | Ile | Val | Pro | Asn | Ile | Lys | Gln | Asn | His | Tyr | |
| | | 435 | | | | | 440 | | | | | 445 | | | | |
| aca | gtg | cat | gga | ctc | cag | agc | ggg | act | cgc | tac | atc | ttc | atc | gtt | aaa | 1392 |
| Thr | Val | His | Gly | Leu | Gln | Ser | Gly | Thr | Arg | Tyr | Ile | Phe | Ile | Val | Lys | |
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| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|---------|-----|------|
| Ala | Ile | Asn | Gln | Ala | Gly | Ser | Arg | Asn | Ser | Glu | Pro | Thr | Arg | Leu | Lys | |
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| aca | aac | agc | caa | ccc | ttt | aaa | ttg | gat | ccc | aaa | atg | act | cac | aag | aag | 1488 |
| Thr | Asn | Ser | Gln | Pro | Phe | Lys | Leu | Asp | Pro | Lys | Met | Thr | His | Lys | Lys | |
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| ttg | aag | atc | tcc | aat | gat | gga | ttg | cag | atg | gag | aag | gat | gaa | agc | tct | 1536 |
| Leu | Lys | Ile | Ser | Asn | Asp | Gly | Leu | Gln | Met | Glu | Lys | Asp | Glu | Ser | Ser | |
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| cta | aag | aag | agc | cac | acc | cca | gag | agg | ttt | agt | ggc | aca | ggg | tgc | tat | 1584 |
| Leu | Lys | Lys | Ser | His | Thr | Pro | Glu | Arg | Phe | Ser | Gly | Thr | Gly | Cys | Tyr | |
| | | 515 | | | | | 520 | | | | | 525 | | | | |
| ggg | gca | gca | gga | aat | ata | ttc | att | gac | agt | ggc | tgc | cac | tat | tgg | gag | 1632 |
| Gly | Ala | Ala | Gly | Asn | Ile | Phe | Ile | Asp | Ser | Gly | Cys | His | Tyr | Trp | Glu | |
| | 530 | | | | | 535 | | | | | 540 | | | | | |
| gtg | gtc | atg | ggt | tcc | tca | aca | tgg | tat | gca | att | ggc | att | gcc | tac | aaa | 1680 |
| Val | Val | Met | Gly | Ser | Ser | Thr | Trp | Tyr | Ala | Ile | Gly | Ile | Ala | Tyr | Lys | |
| 545 | | | | | 550 | | | | | 555 | | | | | 560 | |
| tca | gct | cca | aag | aat | gaa | tgg | att | ggc | aag | aat | gcc | tcc | tca | tgg | gtc | 1728 |
| Ser | Ala | Pro | Lys | Asn | Glu | Trp | Ile | Gly | Lys | Asn | Ala | Ser | Ser | Trp | Val | |
| | | | | 565 | | | | | 570 | | | | | 575 | | |
| ttc | tct | cgc | tgc | aat | agt | aac | ttc | gtg | gtg | aga | cac | aac | aac | aag | gaa | 1776 |
| Phe | Ser | Arg | Cys | Asn | Ser | Asn | Phe | Val | Val | Arg | His | Asn | Asn | Lys | Glu | |
| | | | 580 | | | | | 585 | | | | | 590 | | | |
| atg | ctg | gtg | gat | gtg | ccc | cca | cac | ctg | aag | cgt | ctg | ggt | gtc | ctc | ctg | 1824 |
| Met | Leu | Val | Asp | Val | Pro | Pro | His | Leu | Lys | Arg | Leu | Gly | Val | Leu | Leu | |
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| gat | tat | gac | aac | aat | atg | ctg | tct | ttc | tat | gac | cca | gct | aac | tct | ctc | 1872 |
| Asp | Tyr | Asp | Asn | Asn | Met | Leu | Ser | Phe | Tyr | Asp | Pro | Ala | Asn | Ser | Leu | |
| | 610 | | | | | 615 | | | | | 620 | | | | | |
| cat | ctt | cat | act | ttt | gat | gtg | acc | ttc | att | ctt | cca | ggt | tgt | cca | aca | 1920 |
| His | Leu | His | Thr | Phe | Asp | Val | Thr | Phe | Ile | Leu | Pro | Val | Cys | Pro | Thr | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | |
| ttt | aca | atc | tgg | aac | aaa | tcc | cta | atg | atc | ctg | tct | ggc | ttg | cct | gcc | 1968 |
| Phe | Thr | Ile | Trp | Asn | Lys | Ser | Leu | Met | Ile | Leu | Ser | Gly | Leu | Pro | Ala | |
| | | | | 645 | | | | | 650 | | | | | 655 | | |
| cca | gat | ttt | att | gat | tac | cct | gag | cgg | cag | gaa | tgc | aac | tgc | agg | cct | 2016 |
| Pro | Asp | Phe | Ile | Asp | Tyr | Pro | Glu | Arg | Gln | Glu | Cys | Asn | Cys | Arg | Pro | |
| | | | | 660 | | | | 665 | | | | | 670 | | | |
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gcc cag gcc aag cct gaa aag aag gct ggg gaa gag gtt atc gct ggg 638
Ala Gln Ala Lys Pro Glu Lys Lys Ala Gly Glu Glu Val Ile Ala Gly
10              15              20              25

cct gag aga gag aat gat gtc cct ctg gtg gtc aga ccc aag gtt agg 686
Pro Glu Arg Glu Asn Asp Val Pro Leu Val Val Arg Pro Lys Val Arg
30              35              40

acc cag gca act act ggg gca agg ccc aaa act gag acc aag tct gtg 734
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45              50              55

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| | |
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| gct caa gga atc aca ggg gcc agg ccc aaa acc gat gcc agg gca gta Ala Gln Gly Ile Thr Gly Ala Arg Pro Lys Thr Asp Ala Arg Ala Val 90 95 100 105 | 878 |
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| tct tct ttc tgg act gga gaa gag aca agt gtc aga tca tgg ccc agg Ser Ser Phe Trp Thr Gly Glu Glu Thr Ser Val Arg Ser Trp Pro Arg 235 240 245 | 1310 |
| gaa gag tcc aat acc agg tcc agg cac agg gct aaa cat cag act aat Glu Glu Ser Asn Thr Arg Ser Arg His Arg Ala Lys His Gln Thr Asn 250 255 260 265 | 1358 |
| ccc agg tcc agg ccc aga tcc aag caa gaa gcc tat gtt gat tcc tgg Pro Arg Ser Arg Pro Arg Ser Lys Gln Glu Ala Tyr Val Asp Ser Trp 270 275 280 | 1406 |
| tct gga tct gag gat gag gcc agc aac cca ttc tcc ttc tgg gtt gga Ser Gly Ser Glu Asp Glu Ala Ser Asn Pro Phe Ser Phe Trp Val Gly 285 290 295 | 1454 |
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| gcc aat agt aga ttc agg cac aga gac aaa gaa gat cct aat act gcc Ala Asn Ser Arg Phe Arg His Arg Asp Lys Glu Asp Pro Asn Thr Ala 350 355 360 | 1646 |
| ttg aaa ctc agg gcc cag aaa gat gtt gac agt gat agg gtc aaa caa Leu Lys Leu Arg Ala Gln Lys Asp Val Asp Ser Asp Arg Val Lys Gln 365 370 375 | 1694 |
| gaa ccc agg ttt gag gag gaa gtc att att ggg tcc tgg ttc tgg gca Glu Pro Arg Phe Glu Glu Glu Val Ile Ile Gly Ser Trp Phe Trp Ala 380 385 390 | 1742 |
| gaa aaa gag gcc agt ttg gag ggt gga gct tca gca atc tgt gaa tct Glu Lys Glu Ala Ser Leu Glu Gly Gly Ala Ser Ala Ile Cys Glu Ser 395 400 405 | 1790 |
| gag cca gga act gag gag ggg gcc att ggc gga tcc gcg tac tgg gct Glu Pro Gly Thr Glu Glu Gly Ala Ile Gly Gly Ser Ala Tyr Trp Ala 410 415 420 425 | 1838 |
| gag gaa aag tcc agt ttg ggg gct gtg gcc aga gaa gag gcc aag ccg Glu Glu Lys Ser Ser Leu Gly Ala Val Ala Arg Glu Glu Ala Lys Pro 430 435 440 | 1886 |
| gag tct gaa gaa gag gcc ata ttt ggg tcc tgg ttc tgg gac aga gat Glu Ser Glu Glu Glu Ala Ile Phe Gly Ser Trp Phe Trp Asp Arg Asp 445 450 455 | 1934 |
| gag gcc tgc ttt gac cta aat ccc tgt cct gtg tac aag gtc agt gat Glu Ala Cys Phe Asp Leu Asn Pro Cys Pro Val Tyr Lys Val Ser Asp 460 465 470 | 1982 |
| agg ttc aga gat gca gct gag gag ctt aat gca tcc tcc agg ccc caa Arg Phe Arg Asp Ala Ala Glu Glu Leu Asn Ala Ser Ser Arg Pro Gln 475 480 485 | 2030 |
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| gaa gag cag gaa tct ttg ctt cag cct gat cag cct agt cct gag ttc Glu Glu Gln Glu Ser Leu Leu Gln Pro Asp Gln Pro Ser Pro Glu Phe 540 545 550 | 2222 |
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| His Leu Arg Ala Arg Glu Ser Ala Glu Ser Glu Ser Trp Ser Cys Ser | |
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| Cys Ile Gln Cys Glu Leu Lys Ile Gly Ser Glu Glu Phe Glu Glu Phe | |
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| ctt tta tta atg gac aaa att cgg gat cct ttt att cat gaa ata tct | 2414 |
| Leu Leu Leu Met Asp Lys Ile Arg Asp Pro Phe Ile His Glu Ile Ser | |
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| Lys Ile Ala Met Gly Met Arg Ser Ala Ser Gln Phe Thr Arg Asp Phe | |
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| Ile Arg Asp Ser Gly Val Val Ser Leu Ile Glu Thr Leu Leu Asn Tyr | |
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| cca tcc tct aga gtt agg aca agt ttt ttg gaa aat atg att cac atg | 2558 |
| Pro Ser Ser Arg Val Arg Thr Ser Phe Leu Glu Asn Met Ile His Met | |
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| gtg tgt gag gaa acc ctt gca cat agt gtg gat tcc ctt gag cag ctg | 2654 |
| Val Cys Glu Glu Thr Leu Ala His Ser Val Asp Ser Leu Glu Gln Leu | |
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| Thr Gly Ile Arg Met Leu Arg His Leu Thr Met Thr Ile Asp Tyr His | |
| 700 705 710 | |
| aca ctg att gcc aac tat atg tcc ggg ttt ctc tcc tta tta acc aca | 2750 |
| Thr Leu Ile Ala Asn Tyr Met Ser Gly Phe Leu Ser Leu Leu Thr Thr | |
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| gcc aat gcg aga acg aag ttt cac gtt ctg aaa atg cta ttg aat ttg | 2798 |
| Ala Asn Ala Arg Thr Lys Phe His Val Leu Lys Met Leu Leu Asn Leu | |
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| tct gaa aat cct gct gtg gca aaa aaa cta ttc agt gcc aaa gct ctt | 2846 |
| Ser Glu Asn Pro Ala Val Ala Lys Lys Leu Phe Ser Ala Lys Ala Leu | |
| 750 755 760 | |
| tca ata ttt gtg ggt ctc ttt aac ata gaa gag aca aat gat aat att | 2894 |
| Ser Ile Phe Val Gly Leu Phe Asn Ile Glu Glu Thr Asn Asp Asn Ile | |
| 765 770 775 | |
| caa att gtt att aaa atg ttt cag aat atc agt aac att ata aaa agt | 2942 |
| Gln Ile Val Ile Lys Met Phe Gln Asn Ile Ser Asn Ile Ile Lys Ser | |
| 780 785 790 | |
| gga aag atg tcc tta att gat gat gat ttc agt ctt gag ccg ctt att | 2990 |
| Gly Lys Met Ser Leu Ile Asp Asp Asp Phe Ser Leu Glu Pro Leu Ile | |
| 795 800 805 | |
| tct gca ttt cgt gaa ttt gag gag tta gct aag caa cta caa gcc caa | 3038 |
| Ser Ala Phe Arg Glu Phe Glu Glu Leu Ala Lys Gln Leu Gln Ala Gln | |
| 810 815 820 825 | |

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830

835

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 1 5 10
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| 35 40 45 | |
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| Leu Asn Leu Ser Leu Ile Pro Asn Lys Ser Leu Thr Thr Ala Met Gln | |
| 50 55 60 | |
| ttc aag cta gtg tac aag acc gga gat gtg cca ctg att cga att gaa | 1079 |
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| Glu Asp Thr Gly Glu Ile Phe Thr Thr Gly Ala Arg Ile Asp Arg Glu | |
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| aaa tta tgt gct ggt atc cca agg gat gag cat tgc ttt tat gaa gtg | 1175 |
| Lys Leu Cys Ala Gly Ile Pro Arg Asp Glu His Cys Phe Tyr Glu Val | |
| 95 100 105 110 | |
| gag gtt gcc att ttg ccg gat gaa ata ttt aga ctg gtt aag ata cgt | 1223 |
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| 115 120 125 | |
| ttt ctg ata gaa gat ata aat gat aat gca cca ttg ttc cca gca aca | 1271 |
| Phe Leu Ile Glu Asp Ile Asn Asp Asn Ala Pro Leu Phe Pro Ala Thr | |
| 130 135 140 | |
| gtt atc aac ata tca att cca gag aac tcg gct ata aac tct aaa tat | 1319 |
| Val Ile Asn Ile Ser Ile Pro Glu Asn Ser Ala Ile Asn Ser Lys Tyr | |
| 145 150 155 | |
| act ctc cca gcg gct gtt gat cct gac gta gga ata aac gga gtt caa | 1367 |
| Thr Leu Pro Ala Ala Val Asp Pro Asp Val Gly Ile Asn Gly Val Gln | |
| 160 165 170 | |
| aac tac gaa cta att aag agt caa aac att ttt ggc ctc gat gtc att | 1415 |
| Asn Tyr Glu Leu Ile Lys Ser Gln Asn Ile Phe Gly Leu Asp Val Ile | |
| 175 180 185 190 | |
| gaa aca cca gaa gga gac aag atg cca caa ctg att gtt caa aag gag | 1463 |
| Glu Thr Pro Glu Gly Asp Lys Met Pro Gln Leu Ile Val Gln Lys Glu | |
| 195 200 205 | |
| tta gat agg gaa gag aag gat acc tac gtg atg aaa gta aag gtt gaa | 1511 |
| Leu Asp Arg Glu Glu Lys Asp Thr Tyr Val Met Lys Val Lys Val Glu | |
| 210 215 220 | |
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| Asp Gly Gly Phe Pro Gln Arg Ser Ser Thr Ala Ile Leu Gln Val Ser | |
| 225 230 235 | |
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| Val Thr Asp Thr Asn Asp Asn His Pro Val Phe Lys Glu Thr Glu Ile | |
| 240 245 250 | |
| gaa gtc agt ata cca gaa aat gct cct gta ggc act tca gtg aca cag | 1655 |
| Glu Val Ser Ile Pro Glu Asn Ala Pro Val Gly Thr Ser Val Thr Gln | |
| 255 260 265 270 | |
| ctc cat gcc aca gat gct gac ata ggt gaa aat gcc aag atc cac ttc | 1703 |
| Leu His Ala Thr Asp Ala Asp Ile Gly Glu Asn Ala Lys Ile His Phe | |
| 275 280 285 | |

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| tct ttc agc aat cta gtc tcc aac att gcc agg aga tta ttt cac ctc Ser Phe Ser Asn Leu Val Ser Asn Ile Ala Arg Arg Leu Phe His Leu 290 295 300 | 1751 |
| aat gcc acc act gga ctt atc aca atc aaa gaa cca ctg gat agg gaa Asn Ala Thr Thr Gly Leu Ile Thr Ile Lys Glu Pro Leu Asp Arg Glu 305 310 315 | 1799 |
| gaa aca cca aac cac aag tta ctg gtt ttg gca agt gat ggt gga ttg Glu Thr Pro Asn His Lys Leu Leu Val Leu Ala Ser Asp Gly Gly Leu 320 325 330 | 1847 |
| atg cca gca aga gca atg gtg ctg gta aat gtt aca gat gtc aat gat Met Pro Ala Arg Ala Met Val Leu Val Asn Val Thr Asp Val Asn Asp 335 340 345 350 | 1895 |
| aat gtc cca tcc att gac ata aga tac atc gtc aat cct gtc aat gac Asn Val Pro Ser Ile Asp Ile Arg Tyr Ile Val Asn Pro Val Asn Asp 355 360 365 | 1943 |
| aca gtt gtt ctt tca gaa aat att cca ctc aac acc aaa att gct ctc Thr Val Val Leu Ser Glu Asn Ile Pro Leu Asn Thr Lys Ile Ala Leu 370 375 380 | 1991 |
| ata act gtg acg gat aag gat gcg gac cat aat ggc agg gtg aca tgc Ile Thr Val Thr Asp Lys Asp Ala Asp His Asn Gly Arg Val Thr Cys 385 390 395 | 2039 |
| ttc aca gat cat gaa atc cct ttc aga tta agg cca gta ttc agt aat Phe Thr Asp His Glu Ile Pro Phe Arg Leu Arg Pro Val Phe Ser Asn 400 405 410 | 2087 |
| cag ttc ctc ctg gag act gca gca tat ctt gac tat gag tcc aca aaa Gln Phe Leu Leu Glu Thr Ala Ala Tyr Leu Asp Tyr Glu Ser Thr Lys 415 420 425 430 | 2135 |
| gaa tat gcc att aaa tta ctg gct gca gat gct ggc aaa cct cct ttg Glu Tyr Ala Ile Lys Leu Leu Ala Ala Asp Ala Gly Lys Pro Pro Leu 435 440 445 | 2183 |
| aat cag tca gca atg ctc ttc atc aaa gtg aaa gat gaa aat gac aat Asn Gln Ser Ala Met Leu Phe Ile Lys Val Lys Asp Glu Asn Asp Asn 450 455 460 | 2231 |
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| aac tct cct ggc atc cag ttg acg aaa gta agt gca atg gat gca gac Asn Ser Pro Gly Ile Gln Leu Thr Lys Val Ser Ala Met Asp Ala Asp 480 485 490 | 2327 |
| agt ggg cct aat gct aag atc aat tac ctg cta ggc cct gat gct cca Ser Gly Pro Asn Ala Lys Ile Asn Tyr Leu Leu Gly Pro Asp Ala Pro 495 500 505 510 | 2375 |
| cct gaa ttc agc ctg gat tgt cgt aca ggc atg ctg act gta gtg aag Pro Glu Phe Ser Leu Asp Cys Arg Thr Gly Met Leu Thr Val Val Lys 515 520 525 | 2423 |
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| Lys Asp Asn Gly Val Pro Pro Leu Thr Ser Asn Val Thr Val Phe Val | |
| 545 550 555 | |
| agc att att gat cag aat gac aat agc cca gtt ttc act cac aat gaa | 2567 |
| Ser Ile Ile Asp Gln Asn Asp Asn Ser Pro Val Phe Thr His Asn Glu | |
| 560 565 570 | |
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| Tyr Asn Phe Tyr Val Pro Glu Asn Leu Pro Arg His Gly Thr Val Gly | |
| 575 580 585 590 | |
| cta atc act gta act gat cct gat tat gga gac aat tct gca gtt acg | 2663 |
| Leu Ile Thr Val Thr Asp Pro Asp Tyr Gly Asp Asn Ser Ala Val Thr | |
| 595 600 605 | |
| ctc tcc att tta gat gag aat gat gac ttc acc att gat tca caa act | 2711 |
| Leu Ser Ile Leu Asp Glu Asn Asp Asp Phe Thr Ile Asp Ser Gln Thr | |
| 610 615 620 | |
| ggt gtc atc cga cca aat att tca ttt gat aga gaa aaa caa gaa tct | 2759 |
| Gly Val Ile Arg Pro Asn Ile Ser Phe Asp Arg Glu Lys Gln Glu Ser | |
| 625 630 635 | |
| tac act ttc tat gta aag gct gag gat ggt ggt aga gta tca cgt tct | 2807 |
| Tyr Thr Phe Tyr Val Lys Ala Glu Asp Gly Gly Arg Val Ser Arg Ser | |
| 640 645 650 | |
| tca agt gcc aaa gta acc ata aat gtg gtt gat gtc aat gac aac aaa | 2855 |
| Ser Ser Ala Lys Val Thr Ile Asn Val Val Asp Val Asn Asp Asn Lys | |
| 655 660 665 670 | |
| cca gtt ttc att gtc cct cct tcc aac tgt tct tat gaa ttg gtt cta | 2903 |
| Pro Val Phe Ile Val Pro Pro Ser Asn Cys Ser Tyr Glu Leu Val Leu | |
| 675 680 685 | |
| ccg tcc act aat cca ggc aca gtg gtc ttt cag gta att gct gtt gac | 2951 |
| Pro Ser Thr Asn Pro Gly Thr Val Val Phe Gln Val Ile Ala Val Asp | |
| 690 695 700 | |
| aat gac act ggc atg aat gca gag gtt cgt tac agc att gta gga gga | 2999 |
| Asn Asp Thr Gly Met Asn Ala Glu Val Arg Tyr Ser Ile Val Gly Gly | |
| 705 710 715 | |
| aac aca aga gat ctg ttt gca atc gac caa gaa aca ggc aac ata aca | 3047 |
| Asn Thr Arg Asp Leu Phe Ala Ile Asp Gln Glu Thr Gly Asn Ile Thr | |
| 720 725 730 | |
| ttg atg gag aaa tgt gat gtt aca gac ctt ggt tta cac aga gtg ttg | 3095 |
| Leu Met Glu Lys Cys Asp Val Thr Asp Leu Gly Leu His Arg Val Leu | |
| 735 740 745 750 | |
| gtc aaa gct aat gac tta gga cag cct gat tct ctc ttc agt gtt gta | 3143 |
| Val Lys Ala Asn Asp Leu Gly Gln Pro Asp Ser Leu Phe Ser Val Val | |
| 755 760 765 | |
| att gtc aat ctg ttc gtg aat gag tgg gtg acc aat gct aca ctg att | 3191 |
| Ile Val Asn Leu Phe Val Asn Glu Ser Val Thr Asn Ala Thr Leu Ile | |
| 770 775 780 | |
| aat gaa ctg gtg cgc aaa agc act gaa gca cca gtg acc cca aat act | 3239 |
| Asn Glu Leu Val Arg Lys Ser Thr Glu Ala Pro Val Thr Pro Asn Thr | |
| 785 790 795 | |

| | |
|---|------|
| gag ata gct gat gta tcc tca cca act agt gac tat gtc aag atc ctg Glu Ile Ala Asp Val Ser Ser Pro Thr Ser Asp Tyr Val Lys Ile Leu 800 805 810 | 3287 |
| gtt gca gct gtt gct ggc acc ata act gtc gtt gta gtt att ttc atc Val Ala Ala Val Ala Gly Thr Ile Thr Val Val Val Val Ile Phe Ile 815 820 825 830 | 3335 |
| act gct gta gta aga tgt cgc cag gca cca cac ctt aag gct gct cag Thr Ala Val Val Arg Cys Arg Gln Ala Pro His Leu Lys Ala Ala Gln 835 840 845 | 3383 |
| aaa aac aag cag aat tct gaa tgg gct acc cca aac cca gaa aac agg Lys Asn Lys Gln Asn Ser Glu Trp Ala Thr Pro Asn Pro Glu Asn Arg 850 855 860 | 3431 |
| cag atg ata atg atg aag aaa aag aaa aag aag aag aag cat tcc cct Gln Met Ile Met Met Lys Lys Lys Lys Lys Lys Lys Lys His Ser Pro 865 870 875 | 3479 |
| aag aac ttg ctg ctt aat ttt gtc act att gaa gaa act aag gca gat Lys Asn Leu Leu Leu Asn Phe Val Thr Ile Glu Glu Thr Lys Ala Asp 880 885 890 | 3527 |
| gat gtt gac agt gat gga aac aga gtc aca cta gac ctt cct att gat Asp Val Asp Ser Asp Gly Asn Arg Val Thr Leu Asp Leu Pro Ile Asp 895 900 905 910 | 3575 |
| cta gaa gag caa aca atg gga aag tac aat tgg gta act aca cct act Leu Glu Glu Gln Thr Met Gly Lys Tyr Asn Trp Val Thr Thr Pro Thr 915 920 925 | 3623 |
| act ttc aag ccc gac agc cct gat ttg gcc cga cac tac aaa tct gcc Thr Phe Lys Pro Asp Ser Pro Asp Leu Ala Arg His Tyr Lys Ser Ala 930 935 940 | 3671 |
| tct cca cag cct gcc ttc caa att cag cct gaa act ccc ctg aat tcg Ser Pro Gln Pro Ala Phe Gln Ile Gln Pro Glu Thr Pro Leu Asn Ser 945 950 955 | 3719 |
| aag cac cac atc atc caa gaa ctg cct ctc gat aac acc ttt gtg gcc Lys His His Ile Ile Gln Glu Leu Pro Leu Asp Asn Thr Phe Val Ala 960 965 970 | 3767 |
| tgt gac tct atc tcc aag tgt tcc tca agc agt tca gat ccc tac agc Cys Asp Ser Ile Ser Lys Cys Ser Ser Ser Ser Ser Asp Pro Tyr Ser 975 980 985 990 | 3815 |
| gtt tct gac tgt ggc tat cca gtg acg acc ttc gag gta cct gtg tcc Val Ser Asp Cys Gly Tyr Pro Val Thr Thr Phe Glu Val Pro Val Ser 995 1000 1005 | 3863 |
| gta cac acc aga ccg gta ggt atc caa gtt tct aac aca act ttc taa Val His Thr Arg Pro Val Gly Ile Gln Val Ser Asn Thr Thr Phe * 1010 1015 1020 | 3911 |
| ctattttttt attattattt tcagttgatg tagaacttta caaaatctat tgacttcaaa | 3971 |
| gagggatcaa aacaatcata ttctacagat gtaccaata gatatatgga ttcaattaag | 4031 |
| tttggtagaa gatgagaaca aaataactac tgatttagga aaattggatg cagaataata | 4091 |
| attatagtag gggcaatttt gtctgtagat ggcagtatga caattcttgc tagagaatat | 4151 |

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 agaaaagtgt cgttttcaga ttaggaactc aaaattattht tgggtgcatca aatctacagt 4451
 cacacaatat aacaagaatg ggattagaaa aatgaaagcc tactcattct catctttaag 4511
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 Met Asp Phe Val Phe Ser Leu Val Asn Ser Phe Leu Gly Glu Phe Leu
 1 5 10 15
 agg aga atc att ggg atg caa ctg atc aca agt ctt ggc ctt cag gag 155
 Arg Arg Ile Ile Gly Met Gln Leu Ile Thr Ser Leu Gly Leu Gln Glu
 20 25 30
 ttt gac att gcc agg aac gtt cta gaa ctg atc tat gca caa act ctg 203
 Phe Asp Ile Ala Arg Asn Val Leu Glu Leu Ile Tyr Ala Gln Thr Leu
 35 40 45
 gtg tgg att ggc atc ttc ttc tgc ccc ctg ctg ccc ttt atc caa atg 251
 Val Trp Ile Gly Ile Phe Phe Cys Pro Leu Leu Pro Phe Ile Gln Met
 50 55 60
 att atg ctt ttc atc atg ttc tac tcc aaa aat atc agc ctg atg atg 299
 Ile Met Leu Phe Ile Met Phe Tyr Ser Lys Asn Ile Ser Leu Met Met
 65 70 75 80
 aat ttc cag cct ccg agc aaa gcc tgg cgg gcc tca cag atg atg act 347
 Asn Phe Gln Pro Pro Ser Lys Ala Trp Arg Ala Ser Gln Met Met Thr
 85 90 95
 ttc ttc atc ttc ttg ctc ttt ttc cca tcc ttc acc ggg gtc ttg tgc 395
 Phe Phe Ile Phe Leu Leu Phe Phe Pro Ser Phe Thr Gly Val Leu Cys
 100 105 110
 acc ctg gcc atc acc atc tgg aga ttg aag cct tca gct gac tgt ggc 443
 Thr Leu Ala Ile Thr Ile Trp Arg Leu Lys Pro Ser Ala Asp Cys Gly
 115 120 125
 cct ttt cga ggt ctg cct ctc ttc att cac tcc atc tac agc tgg atc 491

| | | | | | | | | | | | | | | | | | |
|------------|------------|------------|-------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|------------|-----|-----|--|------|
| Pro | Phe | Arg | Gly | Leu | Pro | Leu | Phe | Ile | His | Ser | Ile | Tyr | Ser | Trp | Ile | | |
| 130 | | | | | | 135 | | | | | 140 | | | | | | |
| gac | acc | cta | agt | aca | cgg | cct | ggc | tac | ctg | tgg | gtt | gtt | tgg | atc | tat | | 539 |
| Asp | Thr | Leu | Ser | Thr | Arg | Pro | Gly | Tyr | Leu | Trp | Val | Val | Trp | Ile | Tyr | | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | | |
| cgg | aac | ctc | att | gga | agt | gtg | cac | ttc | ttt | ttc | atc | ctc | acc | ctc | att | | 587 |
| Arg | Asn | Leu | Ile | Gly | Ser | Val | His | Phe | Phe | Phe | Ile | Leu | Thr | Leu | Ile | | |
| | | | | 165 | | | | 170 | | | | | | 175 | | | |
| gtg | cta | atc | atc | acc | tat | ctt | tac | tgg | cag | atc | aca | gag | gga | agg | aag | | 635 |
| Val | Leu | Ile | Ile | Thr | Tyr | Leu | Tyr | Trp | Gln | Ile | Thr | Glu | Gly | Arg | Lys | | |
| | | | 180 | | | | | 185 | | | | | 190 | | | | |
| att | atg | ata | agg | ctg | ctc | cat | gag | cag | atc | att | aat | gag | ggc | aaa | gat | | 683 |
| Ile | Met | Ile | Arg | Leu | Leu | His | Glu | Gln | Ile | Ile | Asn | Glu | Gly | Lys | Asp | | |
| | | 195 | | | | 200 | | | | | 205 | | | | | | |
| aaa | atg | ttc | ctg | ata | gaa | aaa | ttg | atc | aag | ctg | cag | gat | atg | gag | aag | | 731 |
| Lys | Met | Phe | Leu | Ile | Glu | Lys | Leu | Ile | Lys | Leu | Gln | Asp | Met | Glu | Lys | | |
| | 210 | | | | | 215 | | | | | 220 | | | | | | |
| aaa | gca | aac | ccc | agc | tca | ctt | gtt | ctg | gaa | agg | aga | gag | gtg | gag | caa | | 779 |
| Lys | Ala | Asn | Pro | Ser | Ser | Leu | Val | Leu | Glu | Arg | Arg | Glu | Val | Glu | Gln | | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | | |
| caa | ggc | ttt | ttg | cat | ttg | ggg | gaa | cat | gat | ggc | agt | ctt | gac | ttg | cga | | 827 |
| Gln | Gly | Phe | Leu | His | Leu | Gly | Glu | His | Asp | Gly | Ser | Leu | Asp | Leu | Arg | | |
| | | | | 245 | | | | | 250 | | | | | 255 | | | |
| tct | aga | aga | tca | gtt | caa | gaa | ggt | aat | cca | agg | gcc | tga | tgactctttt | | | | 876 |
| Ser | Arg | Arg | Ser | Val | Gln | Glu | Gly | Asn | Pro | Arg | Ala | * | | | | | |
| | | | 260 | | | | | 265 | | | | | | | | | |
| ggtaaccaga | caccaatcaa | ataaggggag | gagatgaaaa | tggaatgatt | tcttccatgc | | | | | | | | | | | | 936 |
| cacctgtgcc | tttaggaact | gcccagaaga | aatccaagg | ctttagccag | gagcggaac | | | | | | | | | | | | 996 |
| tgactaccat | gtaattatca | aagtaaaatt | gggcattcca | tgctatTTTT | aatacctgga | | | | | | | | | | | | 1056 |
| ttgctgattt | ttcaagacaa | aatacttggg | gttttccaat | aaagattggt | gtaatattga | | | | | | | | | | | | 1116 |
| aatgagccta | caaaaaccta | ggaagagata | actaggggaat | aatgtatatt | atcttcaaga | | | | | | | | | | | | 1176 |
| agtgtgtgca | ggaatgattg | gttcttagaa | atctctcctg | ccagacttcc | cagacctggc | | | | | | | | | | | | 1236 |
| aaaggtttag | aaactgttgc | taagaaaagt | ggtccatcct | gaataaacat | gtaatactcc | | | | | | | | | | | | 1296 |
| aaaaaaaaaa | aaaaaa | | | | | | | | | | | | | | | | 1312 |

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<400> 783

2133

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| ctc aca cag gat ggg ctg ctg ttt act ttc ggt gct gga aaa cat ggg Leu Thr Gln Asp Gly Leu Leu Phe Thr Phe Gly Ala Gly Lys His Gly 260 265 270 | | | 932 |
| caa ctt ggt cat aat tca aca cag aat gag cta aga ccc tgt ttg gtg Gln Leu Gly His Asn Ser Thr Gln Asn Glu Leu Arg Pro Cys Leu Val 275 280 285 | | | 980 |
| gct gag ctt gtt ggg tat aga gtg act cag ata gca tgt gga agg tgg Ala Glu Leu Val Gly Tyr Arg Val Thr Gln Ile Ala Cys Gly Arg Trp 290 295 300 305 | | | 1028 |
| cac aca ctt gcc tat gtt tct gat ttg gga aag gtc ttt tcc ttt ggt His Thr Leu Ala Tyr Val Ser Asp Leu Gly Lys Val Phe Ser Phe Gly 310 315 320 | | | 1076 |
| tct gga aaa gat gga caa ctg gga aat ggt gga aca cgt gac cag ctg Ser Gly Lys Asp Gly Gln Leu Gly Asn Gly Gly Thr Arg Asp Gln Leu 325 330 335 | | | 1124 |
| atg ccg ctt cca gtg aaa gta tca tca agt gaa gaa ctc aaa ctt gaa Met Pro Leu Pro Val Lys Val Ser Ser Ser Glu Glu Leu Lys Leu Glu 340 345 350 | | | 1172 |
| agc cat acc tca gaa aag gag tta ata atg att gct gga ggg aat caa Ser His Thr Ser Glu Lys Glu Leu Ile Met Ile Ala Gly Gly Asn Gln 355 360 365 | | | 1220 |
| agc att ttg ctc tgg ata aag aaa gag aat tca tat gtt aat ctg aag Ser Ile Leu Leu Trp Ile Lys Lys Glu Asn Ser Tyr Val Asn Leu Lys 370 375 380 385 | | | 1268 |
| agg aca att cct act ctg aat gaa ggg act gta aag aga tgg att gct Arg Thr Ile Pro Thr Leu Asn Glu Gly Thr Val Lys Arg Trp Ile Ala 390 395 400 | | | 1316 |
| gat gtg gag act aaa cgg tgg cag agc aca aaa agg gaa atc caa gag Asp Val Glu Thr Lys Arg Trp Gln Ser Thr Lys Arg Glu Ile Gln Glu 405 410 415 | | | 1364 |
| ata ttt tca tct cct gct tgt cta act gga agt ttt tta agg aaa aga Ile Phe Ser Ser Pro Ala Cys Leu Thr Gly Ser Phe Leu Arg Lys Arg 420 425 430 | | | 1412 |
| aga act aca gaa atg atg cct gtt tat ttg gac tta aat aaa gca aga Arg Thr Thr Glu Met Met Pro Val Tyr Leu Asp Leu Asn Lys Ala Arg 435 440 445 | | | 1460 |
| aac atc ttc agg gag tta acc caa aag gac tgg att act aac atg ata Asn Ile Phe Arg Glu Leu Thr Gln Lys Asp Trp Ile Thr Asn Met Ile 450 455 460 465 | | | 1508 |
| acc acc tgc ctc aaa gat aat ctg ctc aaa aga ctt cca ttt cat tct Thr Thr Cys Leu Lys Asp Asn Leu Leu Lys Arg Leu Pro Phe His Ser 470 475 480 | | | 1556 |
| cca ccc caa gaa gct tta gaa att ttc ttc ctt ctc cca gaa tgt cct Pro Pro Gln Glu Ala Leu Glu Ile Phe Phe Leu Leu Pro Glu Cys Pro | | | 1604 |

| 485 | 490 | 495 | |
|---|-----|-----|------|
| gtg atg cat att tcc aac aac tgg gag agc ctt gtg gtt cca ttt gca Val Met His Ile Ser Asn Asn Trp Glu Ser Leu Val Val Pro Phe Ala 500 505 510 | | | 1652 |
| aag gtt gtt tgt aaa atg agt gac cag tct tca ctg gtt ctg gaa gag Lys Val Val Cys Lys Met Ser Asp Gln Ser Ser Leu Val Leu Glu Glu 515 520 525 | | | 1700 |
| tat tgg gca act ctg caa gaa tcc act ttc agc aaa ctg gtc cag atg Tyr Trp Ala Thr Leu Gln Glu Ser Thr Phe Ser Lys Leu Val Gln Met 530 535 540 545 | | | 1748 |
| ttt aaa aca gcc gtc ata tgc cag ttg gat tac tgg gat gaa agt gct Phe Lys Thr Ala Val Ile Cys Gln Leu Asp Tyr Trp Asp Glu Ser Ala 550 555 560 | | | 1796 |
| gag gag aat ggt aat gtt caa gct ctc cta gaa atg ttg aag aag ctg Glu Glu Asn Gly Asn Val Gln Ala Leu Leu Glu Met Leu Lys Lys Leu 565 570 575 | | | 1844 |
| cac agg gta aac cag gtg aaa tgt caa cta cct gaa agt att ttc caa His Arg Val Asn Gln Val Lys Cys Gln Leu Pro Glu Ser Ile Phe Gln 580 585 590 | | | 1892 |
| gta gac gaa ctc ttg cac cgt ctc aat ttt ttt gta gaa gta tgc aga Val Asp Glu Leu Leu His Arg Leu Asn Phe Phe Val Glu Val Cys Arg 595 600 605 | | | 1940 |
| agg tac ttg tgg aaa atg act gtg gac gct tca gaa aat gta caa tgc Arg Tyr Leu Trp Lys Met Thr Val Asp Ala Ser Glu Asn Val Gln Cys 610 615 620 625 | | | 1988 |
| tgc gtc ata ttc agt cac ttt cca ttt atc ttt aat aat ctg tcg aaa Cys Val Ile Phe Ser His Phe Pro Phe Ile Phe Asn Asn Leu Ser Lys 630 635 640 | | | 2036 |
| att aaa cta cta cat aca gac aca ctt tta aaa ata gag agt aaa aaa Ile Lys Leu Leu His Thr Asp Thr Leu Leu Lys Ile Glu Ser Lys Lys 645 650 655 | | | 2084 |
| cat aaa gct tat ctt agg tcg gca gca att gag gaa gaa aga gag tct His Lys Ala Tyr Leu Arg Ser Ala Ala Ile Glu Glu Glu Arg Glu Ser 660 665 670 | | | 2132 |
| gaa ttc gct ttg agg ccc acg ttt gat cta aca gtc aga agg aat cac Glu Phe Ala Leu Arg Pro Thr Phe Asp Leu Thr Val Arg Arg Asn His 675 680 685 | | | 2180 |
| ttg att gag gat gtt ttg aat cag cta agt caa ttt gag aat gaa gac Leu Ile Glu Asp Val Leu Asn Gln Leu Ser Gln Phe Glu Asn Glu Asp 690 695 700 705 | | | 2228 |
| ctg agg aaa gag tta tgg gtt tca ttt agt gga gaa att ggg tat gac Leu Arg Lys Glu Leu Trp Val Ser Phe Ser Gly Glu Ile Gly Tyr Asp 710 715 720 | | | 2276 |
| ctc gga gga gtc aag aaa gag ttc ttc tac tgt ctg ttt gca gag atg Leu Gly Gly Val Lys Lys Glu Phe Phe Tyr Cys Leu Phe Ala Glu Met 725 730 735 | | | 2324 |
| atc cag ccg gaa tat ggg atg ttc atg tat cct gaa ggg gct tcc tgc Ile Gln Pro Glu Tyr Gly Met Phe Met Tyr Pro Glu Gly Ala Ser Cys | | | 2372 |

| 740 | 745 | 750 | |
|---|-----|-----|------|
| atg tgg ttt cct gtc aag cct aaa ttt gag aag aaa aga tac ttc ttt Met Trp Phe Pro Val Lys Pro Lys Phe Glu Lys Lys Arg Tyr Phe Phe 755 760 765 | | | 2420 |
| ttt ggg gtt cta tgt gga ctt tcc ctg ttc aat tgc aat gtt gcc aac Phe Gly Val Leu Cys Gly Leu Ser Leu Phe Asn Cys Asn Val Ala Asn 770 775 780 785 | | | 2468 |
| ctc cct ttc cca ctg gca ctg ttt aag aaa ctt ttg gac caa atg cca Leu Pro Phe Pro Leu Ala Leu Phe Lys Lys Leu Leu Asp Gln Met Pro 790 795 800 | | | 2516 |
| tca ttg gaa gac ttg aaa gaa ctc agt cct gat ttg gga aag aat ttg Ser Leu Glu Asp Leu Lys Glu Leu Ser Pro Asp Leu Gly Lys Asn Leu 805 810 815 | | | 2564 |
| caa aca ctt ctg gat gat gaa ggt gat aac ttt gag gaa gta ttt tac Gln Thr Leu Leu Asp Asp Glu Gly Asp Asn Phe Glu Glu Val Phe Tyr 820 825 830 | | | 2612 |
| atc cat ttt aat gtg cac tgg gac aga aac gac aca aac tta att cct Ile His Phe Asn Val His Trp Asp Arg Asn Asp Thr Asn Leu Ile Pro 835 840 845 | | | 2660 |
| aat gga agt agc ata act gtc aac cag act aac aag aga gac tat gtt Asn Gly Ser Ser Ile Thr Val Asn Gln Thr Asn Lys Arg Asp Tyr Val 850 855 860 865 | | | 2708 |
| tct aag tat atc aat tac att ttc aac gac tct gta aag gcg gtt tat Ser Lys Tyr Ile Asn Tyr Ile Phe Asn Asp Ser Val Lys Ala Val Tyr 870 875 880 | | | 2756 |
| gaa gaa ttt cgg aga gga ttt tat aaa atg tgc gac gaa gac att atc Glu Glu Phe Arg Arg Gly Phe Tyr Lys Met Cys Asp Glu Asp Ile Ile 885 890 895 | | | 2804 |
| aaa tta ttc cac ccc gaa gaa ctg aag gat gtg att gtt gga aat aca Lys Leu Phe His Pro Glu Glu Leu Lys Asp Val Ile Val Gly Asn Thr 900 905 910 | | | 2852 |
| gat tat gat tgg aaa aca ttt gaa aag aat gca cgt tat gaa cca gga Asp Tyr Asp Trp Lys Thr Phe Glu Lys Asn Ala Arg Tyr Glu Pro Gly 915 920 925 | | | 2900 |
| tat aac agt tca cat ccc acc ata gtg atg ttt tgg aag gct ttc cac Tyr Asn Ser Ser His Pro Thr Ile Val Met Phe Trp Lys Ala Phe His 930 935 940 945 | | | 2948 |
| aaa ttg act ctg gaa gaa aag aaa aaa ttc ctt gta ttt ctt aca gga Lys Leu Thr Leu Glu Glu Lys Lys Lys Phe Leu Val Phe Leu Thr Gly 950 955 960 | | | 2996 |
| act gac aga cta caa atg aaa gat tta aat aat atg aaa ata aca ttt Thr Asp Arg Leu Gln Met Lys Asp Leu Asn Asn Met Lys Ile Thr Phe 965 970 975 | | | 3044 |
| tgc tgt cct gaa agt tgg aat gaa aga gac cct ata aga gca ctg aca Cys Cys Pro Glu Ser Trp Asn Glu Arg Asp Pro Ile Arg Ala Leu Thr 980 985 990 | | | 3092 |
| tgt ttc agt gtc ctc ttc ctc cct aaa tat tct aca atg gaa aca gtt Cys Phe Ser Val Leu Phe Leu Pro Lys Tyr Ser Thr Met Glu Thr Val | | | 3140 |

995 1000 1005
 gaa gaa gcg ctt caa gaa gcc atc aac aac aac aga gga ttt ggc tga 3188
 Glu Glu Ala Leu Gln Glu Ala Ile Asn Asn Asn Arg Gly Phe Gly *
 1010 1015 1020 1025
 ccagcttgct tgtccaacag ccttattttg ttgttggtat cgttggtggt gttgttggtg 3248
 ttgttggttc tctactttgt tttgttttag gcttttagca gcctgaagcc atgggttttc 3308
 atttctgtct ctagtgataa gcaggaaaga gggatgaaga agaggggtta ctggccggtt 3368
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 Pro Leu Leu Thr Val Arg Gly Ser Glu Gly Leu Tyr Met Val Asn Gly
 10 15 20
 cca cca cat ttt aca gaa agc aca gtg ttt cca agg gaa tct ggg aag 149
 Pro Pro His Phe Thr Glu Ser Thr Val Phe Pro Arg Glu Ser Gly Lys
 25 30 35
 aat tgc aaa gtc tgt atc ttt agt aag gat ggg acc ttg ttt gcc tgg 197
 Asn Cys Lys Val Cys Ile Phe Ser Lys Asp Gly Thr Leu Phe Ala Trp
 40 45 50
 ggc aat gga gaa aaa gta aat att atc agt gtc act aac aag gga cta 245
 Gly Asn Gly Glu Lys Val Asn Ile Ile Ser Val Thr Asn Lys Gly Leu
 55 60 65
 ctg cac tcc ttc gac ctc ctg aag gca gtt tgc ctt gaa ttc tca ccc 293
 Leu His Ser Phe Asp Leu Leu Lys Ala Val Cys Leu Glu Phe Ser Pro
 70 75 80 85
 aaa aat act gtc ctg gca acg tgg cag cct tac agt act tct aaa gat 341
 Lys Asn Thr Val Leu Ala Thr Trp Gln Pro Tyr Ser Thr Ser Lys Asp
 90 95 100
 ggc aca gct ggg ata ccc aac cta caa ctt tat gat gtg aaa act ggg 389
 Gly Thr Ala Gly Ile Pro Asn Leu Gln Leu Tyr Asp Val Lys Thr Gly
 105 110 115
 aca tgt ttg aaa tct ttc atc cag aaa aaa atg caa aat tgg tgt cca 437
 Thr Cys Leu Lys Ser Phe Ile Gln Lys Lys Met Gln Asn Trp Cys Pro
 120 125 130

| | |
|---|------|
| tcc tgg tca gaa gat gaa act ctt tgt gcc cgc aat gtt aac aat gaa Ser Trp Ser Glu Asp Glu Thr Leu Cys Ala Arg Asn Val Asn Asn Glu 135 140 145 | 485 |
| ggt cac ttc ttt gaa aac aac aat ttt aac aca att gca aat aaa ttg Val His Phe Phe Glu Asn Asn Asn Phe Asn Thr Ile Ala Asn Lys Leu 150 155 160 165 | 533 |
| cat ttg caa aaa att aat gat ttt gta tta tca cct gga ccc caa cca His Leu Gln Lys Ile Asn Asp Phe Val Leu Ser Pro Gly Pro Gln Pro 170 175 180 | 581 |
| tac aag gtg gct gtc tat gtt cca gga agt aaa ggt gca cct tca ttt Tyr Lys Val Ala Val Tyr Val Pro Gly Ser Lys Gly Ala Pro Ser Phe 185 190 195 | 629 |
| ggt aga tta tat cag tac ccc aac ttt gct gga cct cat gca gct tta Val Arg Leu Tyr Gln Tyr Pro Asn Phe Ala Gly Pro His Ala Ala Leu 200 205 210 | 677 |
| gct aat aaa agt ttc ttt aag gca gat aaa gtt aca atg ctg tgg aat Ala Asn Lys Ser Phe Phe Lys Ala Asp Lys Val Thr Met Leu Trp Asn 215 220 225 | 725 |
| aaa aaa gct act gct gtg ttg gta ata gct agc aca gat gtt gac aag Lys Lys Ala Thr Ala Val Leu Val Ile Ala Ser Thr Asp Val Asp Lys 230 235 240 245 | 773 |
| aca gga gct tcc tac tat gga gaa caa act cta cac tac att gca aca Thr Gly Ala Ser Tyr Tyr Gly Glu Gln Thr Leu His Tyr Ile Ala Thr 250 255 260 | 821 |
| aat gga gaa agt gct gta gtg caa tta cca aaa aat ggc ccc att tat Asn Gly Glu Ser Ala Val Val Gln Leu Pro Lys Asn Gly Pro Ile Tyr 265 270 275 | 869 |
| gat gta gtt tgg aat tct agt tct act gag ttt tgt gct gta tat ggt Asp Val Val Trp Asn Ser Ser Thr Glu Phe Cys Ala Val Tyr Gly 280 285 290 | 917 |
| ttt atg cct gcc aaa gcg aca att ttc aac ttg aaa tgt gat cct gta Phe Met Pro Ala Lys Ala Thr Ile Phe Asn Leu Lys Cys Asp Pro Val 295 300 305 | 965 |
| ttt gac ttt gga act ggt cct cgt aat gca gcc tac tat agc cct cat Phe Asp Phe Gly Thr Gly Pro Arg Asn Ala Ala Tyr Tyr Ser Pro His 310 315 320 325 | 1013 |
| gga cat ata tta gta tta gct gga ttt gga aat ctg agg gga caa atg Gly His Ile Leu Val Leu Ala Gly Phe Gly Asn Leu Arg Gly Gln Met 330 335 340 | 1061 |
| gaa gtg tgg gat gtg aaa aac tac aaa ctt att tct aaa ccg gtg gct Glu Val Trp Asp Val Lys Asn Tyr Lys Leu Ile Ser Lys Pro Val Ala 345 350 355 | 1109 |
| tct gat tct aca tat ttt gct tgg tgc ccg gat ggt gag cat att tta Ser Asp Ser Thr Tyr Phe Ala Trp Cys Pro Asp Gly Glu His Ile Leu 360 365 370 | 1157 |
| aca gct aca tgt gct ccc agg tta cgg gtt aat aat gga tac aaa att Thr Ala Thr Cys Ala Pro Arg Leu Arg Val Asn Asn Gly Tyr Lys Ile 375 380 385 | 1205 |

| | |
|--|------|
| tgg cat tat act ggc tct atc ttg cac aag tat gat gtg cca tca aat | 1253 |
| Trp His Tyr Thr Gly Ser Ile Leu His Lys Tyr Asp Val Pro Ser Asn | |
| 390 395 400 405 | |
| gca gaa tta tgg cag gtt tct tgg cag cca ttt ttg gat gga ata ttt | 1301 |
| Ala Glu Leu Trp Gln Val Ser Trp Gln Pro Phe Leu Asp Gly Ile Phe | |
| 410 415 420 | |
| cca gca aaa aca ata act tac caa gca gtt cca agt gaa gta ccc aat | 1349 |
| Pro Ala Lys Thr Ile Thr Tyr Gln Ala Val Pro Ser Glu Val Pro Asn | |
| 425 430 435 | |
| gag gaa cct aaa gtt gca aca gct tat aga ccc cca gct tta aga aat | 1397 |
| Glu Glu Pro Lys Val Ala Thr Ala Tyr Arg Pro Pro Ala Leu Arg Asn | |
| 440 445 450 | |
| aaa cca atc acc aat tcc aaa ttg cat gaa gag gaa cca cct cag aat | 1445 |
| Lys Pro Ile Thr Asn Ser Lys Leu His Glu Glu Glu Pro Pro Gln Asn | |
| 455 460 465 | |
| atg aaa cca caa tca gga aac gat aag cca tta tca aaa aca gct ctt | 1493 |
| Met Lys Pro Gln Ser Gly Asn Asp Lys Pro Leu Ser Lys Thr Ala Leu | |
| 470 475 480 485 | |
| aaa aat caa agg aag cat gaa gct aag aaa gct gca aag cag gaa gca | 1541 |
| Lys Asn Gln Arg Lys His Glu Ala Lys Lys Ala Ala Lys Gln Glu Ala | |
| 490 495 500 | |
| aga agt gac aag agt cca gat ttg gca cct act cct gcc cca cag agc | 1589 |
| Arg Ser Asp Lys Ser Pro Asp Leu Ala Pro Thr Pro Ala Pro Gln Ser | |
| 505 510 515 | |
| aca cca cga aac act gtc tct cag tca att tct ggg gac cct gag ata | 1637 |
| Thr Pro Arg Asn Thr Val Ser Gln Ser Ile Ser Gly Asp Pro Glu Ile | |
| 520 525 530 | |
| gac aaa aaa atc aag aac cta aag aag aaa ctg aaa gca atc gaa caa | 1685 |
| Asp Lys Lys Ile Lys Asn Leu Lys Lys Lys Leu Lys Ala Ile Glu Gln | |
| 535 540 545 | |
| ctg aaa gaa caa gca gca act gga aaa cag cta gaa aaa aat cag ttg | 1733 |
| Leu Lys Glu Gln Ala Ala Thr Gly Lys Gln Leu Glu Lys Asn Gln Leu | |
| 550 555 560 565 | |
| gag aaa att cag aaa gaa aca gcc ctt ctc cag gag ctg gaa gat ttg | 1781 |
| Glu Lys Ile Gln Lys Glu Thr Ala Leu Leu Gln Glu Leu Glu Asp Leu | |
| 570 575 580 | |
| gaa ttg ggt att taa agattcacgg aaagcaagtt gatgaccaga aatcagtgca | 1836 |
| Glu Leu Gly Ile * | |
| 585 | |
| aacacatctt ctgttaaacc cattggtata cacagaatat tcctgtgccc aactttaatg | 1896 |
| tcaatctata attttaacca tttatccaag atttctactaa gtgtaaaatt atttaataat | 1956 |
| gtctattaaa ttgatattta tatcttgcat cctatatcat gtcaatatgt gatatagaaa | 2016 |
| agagatacgt gaatttttta gctaagcttg acagattgaa agacaagtgt catttttttt | 2076 |
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                               Met Gly Thr Pro Arg Ala Gln His Pro
                               1                               5

ccg cct ccc cag ctg ctg ttc cta att ctg ctg agc tgt ccc tgg atc      159
Pro Pro Pro Gln Leu Leu Phe Leu Ile Leu Leu Ser Cys Pro Trp Ile
  10                               15                               20                               25

cag ggt ctg ccc ctg aag gag gag gag ata ttg cca gag cct gga agt      207
Gln Gly Leu Pro Leu Lys Glu Glu Glu Ile Leu Pro Glu Pro Gly Ser
                               30                               35                               40

gag acc ccc acg gtg gcc tct gag gcc ctg gct gaa ctg ctt cat ggg      255
Glu Thr Pro Thr Val Ala Ser Glu Ala Leu Ala Glu Leu Leu His Gly
                               45                               50                               55

gcc ctg ctg agg agg ggc cca gag atg ggc tac ctg cca ggg cct ccc      303
Ala Leu Leu Arg Arg Gly Pro Glu Met Gly Tyr Leu Pro Gly Pro Pro
                               60                               65                               70

ctt ggg cct gag gga gga gag gag gag acg acg acc acc atc atc acc      351
Leu Gly Pro Glu Gly Gly Glu Glu Glu Thr Thr Thr Thr Ile Ile Thr
  75                               80                               85

acg aca act gtt acc act acg gtg acc agc cca gtt ctg tgt aat aac      399
Thr Thr Thr Val Thr Thr Thr Val Thr Ser Pro Val Leu Cys Asn Asn
  90                               95                               100                               105

aac atc tcc gag ggc gaa ggg tat gtg gag tct cca gat ctg ggg agc      447
Asn Ile Ser Glu Gly Glu Gly Tyr Val Glu Ser Pro Asp Leu Gly Ser
                               110                               115                               120

ccc gtc agc cgc acc ctg ggg ctc ctg gac tgc act tac agc atc cat      495
Pro Val Ser Arg Thr Leu Gly Leu Leu Asp Cys Thr Tyr Ser Ile His
                               125                               130                               135

gtc tac cct ggc tac ggc att gag atc cag gtg cag acg ctg aac ctg      543
Val Tyr Pro Gly Tyr Gly Ile Glu Ile Gln Val Gln Thr Leu Asn Leu
  140                               145                               150

tca cag gaa gag gag ctc ctg gtg ctg gct ggt ggg gga tcc cca ggc      591
Ser Gln Glu Glu Glu Leu Leu Val Leu Ala Gly Gly Gly Ser Pro Gly
  155                               160                               165

ctg gcc ccc cga ctc ctg gcc aac tca tcc atg ctt gga gaa gga caa      639
Leu Ala Pro Arg Leu Leu Ala Asn Ser Ser Met Leu Gly Glu Gly Gln
  170                               175                               180                               185

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| gtc ctt cgg agc cca acc aac cgg ctg ctt ctg cac ttc cag agc cca | 687 |
| Val Leu Arg Ser Pro Thr Asn Arg Leu Leu Leu His Phe Gln Ser Pro | |
| 190 195 200 | |
| cgg gtc cca agg ggc ggt ggc ttc agg atc cac tat cag gcc tac ctc | 735 |
| Arg Val Pro Arg Gly Gly Gly Phe Arg Ile His Tyr Gln Ala Tyr Leu | |
| 205 210 215 | |
| ctg agc tgt ggc ttc cct ccc cgg ccg gcc cat ggg gac gtg agt gtg | 783 |
| Leu Ser Cys Gly Phe Pro Pro Arg Pro Ala His Gly Asp Val Ser Val | |
| 220 225 230 | |
| acg gac ctg cac cct ggg ggc act gcc acc ttt cac tgt gat tcg ggc | 831 |
| Thr Asp Leu His Pro Gly Gly Thr Ala Thr Phe His Cys Asp Ser Gly | |
| 235 240 245 | |
| tac cag ctg cag gga gag gag acc ctc atc tgc ctc aat gcc acc cgg | 879 |
| Tyr Gln Leu Gln Gly Glu Glu Thr Leu Ile Cys Leu Asn Gly Thr Arg | |
| 250 255 260 265 | |
| cca tcc tgg aac ggt gaa acc ccc agc tgc atg gca tcc tgt ggt ggc | 927 |
| Pro Ser Trp Asn Gly Glu Thr Pro Ser Cys Met Ala Ser Cys Gly Gly | |
| 270 275 280 | |
| acc atc cac aat gcc acc ctg ggc cgc atc gtg tcc cca gag cct ggg | 975 |
| Thr Ile His Asn Ala Thr Leu Gly Arg Ile Val Ser Pro Glu Pro Gly | |
| 285 290 295 | |
| gga gcc gta ggg ccc aac ctc acc tgc cgt tgg gtc att gaa gca gct | 1023 |
| Gly Ala Val Gly Pro Asn Leu Thr Cys Arg Trp Val Ile Glu Ala Ala | |
| 300 305 310 | |
| gag ggg cgc cgg ctg cac ctg cac ttt gaa agg gtc tcg ctg gat gag | 1071 |
| Glu Gly Arg Arg Leu His Leu His Phe Glu Arg Val Ser Leu Asp Glu | |
| 315 320 325 | |
| gac aat gac cgg ctg atg gtg cgc tca ggg ggc agc ccc cta tcc ccc | 1119 |
| Asp Asn Asp Arg Leu Met Val Arg Ser Gly Gly Ser Pro Leu Ser Pro | |
| 330 335 340 345 | |
| gtg atc tat gat tcg gac atg gac gat gtc ccc gag cgg ggt ctc atc | 1167 |
| Val Ile Tyr Asp Ser Asp Met Asp Asp Val Pro Glu Arg Gly Leu Ile | |
| 350 355 360 | |
| agt gac gcc cag tcc ctc tac gtg gag ctg ctg tca gag aca cct gcc | 1215 |
| Ser Asp Ala Gln Ser Leu Tyr Val Glu Leu Leu Ser Glu Thr Pro Ala | |
| 365 370 375 | |
| aat ccc ctg ctg tta agc ctt cga ttt gaa gcc ttt gag gag gat cgc | 1263 |
| Asn Pro Leu Leu Leu Ser Leu Arg Phe Glu Ala Phe Glu Glu Asp Arg | |
| 380 385 390 | |
| tgc ttc gcc ccc ttc ctg gca cat gga aat gtc act acc acg gac cct | 1311 |
| Cys Phe Ala Pro Phe Leu Ala His Gly Asn Val Thr Thr Thr Asp Pro | |
| 395 400 405 | |
| gag tat cgc cca ggg gca ctg gca acc ttc tcg tgc ctc cca gga tat | 1359 |
| Glu Tyr Arg Pro Gly Ala Leu Ala Thr Phe Ser Cys Leu Pro Gly Tyr | |
| 410 415 420 425 | |
| gcc ctg gag ccc cct ggg ccc ccc aat gcc atc gaa tgt gtg gat ccc | 1407 |
| Ala Leu Glu Pro Pro Gly Pro Pro Asn Ala Ile Glu Cys Val Asp Pro | |
| 430 435 440 | |

| | |
|---|------|
| aca gaa ccc cac tgg aac gac aca gag ccg gcc tgc aaa gcc atg tgt | 1455 |
| Thr Glu Pro His Trp Asn Asp Thr Glu Pro Ala Cys Lys Ala Met Cys | |
| 445 450 455 | |
| gga ggg gag ctg tcg gaa cca gct ggc gtg gtc ctc tct ccc gac tgg | 1503 |
| Gly Gly Glu Leu Ser Glu Pro Ala Gly Val Val Leu Ser Pro Asp Trp | |
| 460 465 470 | |
| ccc cag agc tat agc ccg ggc caa gac tgc gtg tgg ggc gtg cac gtc | 1551 |
| Pro Gln Ser Tyr Ser Pro Gly Gln Asp Cys Val Trp Gly Val His Val | |
| 475 480 485 | |
| cag gaa gag aag cgc atc ttg ctc caa gtt gag ata ttg aat gtg cgg | 1599 |
| Gln Glu Glu Lys Arg Ile Leu Leu Gln Val Glu Ile Leu Asn Val Arg | |
| 490 495 500 505 | |
| gaa ggg gac atg ctg acg ctg ttt gac ggg gac ggt ccc agc gcc cga | 1647 |
| Glu Gly Asp Met Leu Thr Leu Phe Asp Gly Asp Gly Pro Ser Ala Arg | |
| 510 515 520 | |
| gtc ttg gcc cag ctg cgg gga cct cag ccg cgc cgc cgc ctt ctc tcc | 1695 |
| Val Leu Ala Gln Leu Arg Gly Pro Gln Pro Arg Arg Arg Leu Leu Ser | |
| 525 530 535 | |
| tct ggg ccc gac ctc aca ctg cag ttt cag gca ccg ccc ggg ccc cca | 1743 |
| Ser Gly Pro Asp Leu Thr Leu Gln Phe Gln Ala Pro Pro Gly Pro Pro | |
| 540 545 550 | |
| aat cca ggc ctg ggc cag ggc ttc gta ttg cac ttc aaa gag gtc ccg | 1791 |
| Asn Pro Gly Leu Gly Gln Gly Phe Val Leu His Phe Lys Glu Val Pro | |
| 555 560 565 | |
| agg aac gac acg tgc ccc gag ctg cca cct ccg gag tgg ggc tgg aga | 1839 |
| Arg Asn Asp Thr Cys Pro Glu Leu Pro Pro Pro Glu Trp Gly Trp Arg | |
| 570 575 580 585 | |
| acg gca tcc cac ggg gac ctg atc cgg ggc acg gtg ctc acc tac cag | 1887 |
| Thr Ala Ser His Gly Asp Leu Ile Arg Gly Thr Val Leu Thr Tyr Gln | |
| 590 595 600 | |
| tgc gag cct ggc tac gag ctg cta ggc tcc gac att ctc act tgc cag | 1935 |
| Cys Glu Pro Gly Tyr Glu Leu Leu Gly Ser Asp Ile Leu Thr Cys Gln | |
| 605 610 615 | |
| tgg gac ctg tct tgg agc gcc gcg ccg ccc gcc tgc caa aag atc atg | 1983 |
| Trp Asp Leu Ser Trp Ser Ala Ala Pro Pro Ala Cys Gln Lys Ile Met | |
| 620 625 630 | |
| act tgt gct gac cct ggc gag att gcc aac ggg cac cgc acc gcc tcg | 2031 |
| Thr Cys Ala Asp Pro Gly Glu Ile Ala Asn Gly His Arg Thr Ala Ser | |
| 635 640 645 | |
| gac gcc ggc ttc ccc gtt ggc tcc cac gtc cag tac cgc tgc ctg cca | 2079 |
| Asp Ala Gly Phe Pro Val Gly Ser His Val Gln Tyr Arg Cys Leu Pro | |
| 650 655 660 665 | |
| ggg tac agc ctc gag ggg gca gcc atg ctc acc tgc tac agc cgg gac | 2127 |
| Gly Tyr Ser Leu Glu Gly Ala Ala Met Leu Thr Cys Tyr Ser Arg Asp | |
| 670 675 680 | |
| aca ggc aca ccc aag tgg agc gat agg gtc ccc aaa tgc gcc ttg aag | 2175 |
| Thr Gly Thr Pro Lys Trp Ser Asp Arg Val Pro Lys Cys Ala Leu Lys | |
| 685 690 695 | |

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| tac gag ccg tgc ctg aac ccg ggg gtt ccc gag aat ggc tac cag acg | 2223 |
| Tyr Glu Pro Cys Leu Asn Pro Gly Val Pro Glu Asn Gly Tyr Gln Thr | |
| 700 705 710 | |
| ctg tac aag cac cac tac cag gcg ggc gag tct ctg cgc ttc ttc tgc | 2271 |
| Leu Tyr Lys His His Tyr Gln Ala Gly Glu Ser Leu Arg Phe Phe Cys | |
| 715 720 725 | |
| tat gag ggc ttt gag ctt atc ggc gag gtc acc atc acc tgt gtg ccc | 2319 |
| Tyr Glu Gly Phe Glu Leu Ile Gly Glu Val Thr Ile Thr Cys Val Pro | |
| 730 735 740 745 | |
| ggc cac ccc tcc cag tgg acc agc cag ccc cca ctc tgc aaa gtg acc | 2367 |
| Gly His Pro Ser Gln Trp Thr Ser Gln Pro Pro Leu Cys Lys Val Thr | |
| 750 755 760 | |
| cag acc aca gat cca tca cgg cag ctg gaa ggg ggg aac ctg gcc ctg | 2415 |
| Gln Thr Thr Asp Pro Ser Arg Gln Leu Glu Gly Gly Asn Leu Ala Leu | |
| 765 770 775 | |
| gcc atc ctg ctg cct cta ggc ttg gtc att gtc ctc ggc agt ggc gtt | 2463 |
| Ala Ile Leu Leu Pro Leu Gly Leu Val Ile Val Leu Gly Ser Gly Val | |
| 780 785 790 | |
| tac atc tac tac acc aag ctt cag gga aag tcc ctt ttc ggc ttc tcg | 2511 |
| Tyr Ile Tyr Tyr Thr Lys Leu Gln Gly Lys Ser Leu Phe Gly Phe Ser | |
| 795 800 805 | |
| ggc tcc cac tcc tac agc ccc atc acc gtg gag tcg gac ttc agc aac | 2559 |
| Gly Ser His Ser Tyr Ser Pro Ile Thr Val Glu Ser Asp Phe Ser Asn | |
| 810 815 820 825 | |
| ccg ctg tat gaa gct ggg gat acg cgg gag tat gaa gtt tcc atc tga | 2607 |
| Pro Leu Tyr Glu Ala Gly Asp Thr Arg Glu Tyr Glu Val Ser Ile * | |
| 830 835 840 | |
| acccaagac tacagctgca ggaccagga cgccctccc ctctcattc gggcagaggg | 2667 |
| aaatacggga cccggtctct gcctcctggc tgccctcctc cctggctgtg taaatagtct | 2727 |
| ccctatccca cgaggggggt ttgatggccc tggagatcct acagtaaata aaccagcatc | 2787 |
| ctgccgcca aagccgcctc ttctcagttg ccaaacgagg ggcttgcccc ccgccctacc | 2847 |
| ggcttttgga ttctgggagg ggaactctgc ctccctgcaa atcttgacgc ccctcctgcc | 2907 |
| cagggcacc ctcaaggact gccccgata gctctactgt tcccttgccc acgaagggtgc | 2967 |
| ccccctccca gatgccctgg ccctaggcct gactccggcc aggagggtca gaagaaggac | 3027 |
| aaaggggaga gctgggacaa ggccttgccc ccttcctgcc atctcccaaa cccacagtct | 3087 |
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ggagagagat cgggggtgagt cgcc   atg ggg act ccc agg gcc cag cac ccg      111
                               Met Gly Thr Pro Arg Ala Gln His Pro
                               1                               5

ccg cct ccc cag ctg ctg ttc cta att ctg ctg agc tgt ccc tgg atc      159
Pro Pro Pro Gln Leu Leu Phe Leu Ile Leu Leu Ser Cys Pro Trp Ile
 10                               15                               20                               25

cag ggt ctg ccc ctg aag gag gag gag ata ttg cca gag cct gga agt      207
Gln Gly Leu Pro Leu Lys Glu Glu Glu Ile Leu Pro Glu Pro Gly Ser
                               30                               35                               40

gag acc ccc acg gtg gcc tct gag gcc ctg gct gaa ctg ctt cat ggg      255
Glu Thr Pro Thr Val Ala Ser Glu Ala Leu Ala Glu Leu Leu His Gly
                               45                               50                               55

gcc ctg ctg agg agg ggc cca gag atg ggc tac ctg cca ggg cct ccc      303
Ala Leu Leu Arg Arg Gly Pro Glu Met Gly Tyr Leu Pro Gly Pro Pro
                               60                               65                               70

ctt ggg cct gag gga gga gag gag gag acg acg acc acc atc atc acc      351
Leu Gly Pro Glu Gly Gly Glu Glu Glu Thr Thr Thr Thr Ile Ile Thr
 75                               80                               85

acg aca act gtt acc act acg gtg acc agc cca gtt ctg tgt aat aac      399
Thr Thr Thr Val Thr Thr Thr Val Thr Ser Pro Val Leu Cys Asn Asn
 90                               95                               100                               105

aac atc tcc gag ggc gaa ggg tat gtg gag tct cca gat ctg ggg agc      447
Asn Ile Ser Glu Gly Glu Gly Tyr Val Glu Ser Pro Asp Leu Gly Ser
                               110                               115                               120

ccc gtc agc cgc acc ctg ggg ctc ctg gac tgc act tac agc atc cat      495
Pro Val Ser Arg Thr Leu Gly Leu Leu Asp Cys Thr Tyr Ser Ile His
                               125                               130                               135

gtc tac cct ggc tac ggc att gag atc cag gtg cag acg ctg aac ctg      543
Val Tyr Pro Gly Tyr Gly Ile Glu Ile Gln Val Gln Thr Leu Asn Leu
                               140                               145                               150

tca cag gaa gag gag ctc ctg gtg ctg gct ggt ggg gga tcc cca ggc      591
Ser Gln Glu Glu Glu Leu Leu Val Leu Ala Gly Gly Gly Ser Pro Gly
                               155                               160                               165

ctg gcc ccc cga ctc ctg gcc aac tca tcc atg ctt gga gaa gga caa      639
Leu Ala Pro Arg Leu Leu Ala Asn Ser Ser Met Leu Gly Glu Gly Gln
170                               175                               180                               185

gtc ctt cgg agc cca acc aac cgg ctg ctt ctg cac ttc cag agc cca      687
Val Leu Arg Ser Pro Thr Asn Arg Leu Leu Leu His Phe Gln Ser Pro
                               190                               195                               200

cgg gtc cca agg ggc ggt ggc ttc agg atc cac tat cag gcc tac ctc      735
Arg Val Pro Arg Gly Gly Gly Phe Arg Ile His Tyr Gln Ala Tyr Leu
                               205                               210                               215

ctg agc tgt ggc ttc cct ccc cgg ccg gcc cat ggg gac gtg agt gtg      783

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|------|
| Leu | Ser | Cys | Gly | Phe | Pro | Pro | Arg | Pro | Ala | His | Gly | Asp | Val | Ser | Val | | |
| | | 220 | | | | | 225 | | | | | 230 | | | | | |
| acg | gac | ctg | cac | cct | ggg | ggc | act | gcc | acc | ttt | cac | tgt | gat | tcg | ggc | | 831 |
| Thr | Asp | Leu | His | Pro | Gly | Gly | Thr | Ala | Thr | Phe | His | Cys | Asp | Ser | Gly | | |
| | 235 | | | | | 240 | | | | | 245 | | | | | | |
| tac | cag | ctg | cag | gga | gag | gag | acc | ctc | atc | tgc | ctc | aat | ggc | acc | cgg | | 879 |
| Tyr | Gln | Leu | Gln | Gly | Glu | Glu | Thr | Leu | Ile | Cys | Leu | Asn | Gly | Thr | Arg | | |
| | 250 | | | | 255 | | | | | 260 | | | | | 265 | | |
| cca | tcc | tgg | aac | ggt | gaa | acc | ccc | agc | tgc | atg | gca | tcc | tgt | ggg | ggc | | 927 |
| Pro | Ser | Trp | Asn | Gly | Glu | Thr | Pro | Ser | Cys | Met | Ala | Ser | Cys | Gly | Gly | | |
| | | | | 270 | | | | | 275 | | | | | 280 | | | |
| acc | atc | cac | aat | gcc | acc | ctg | ggc | cgc | atc | gtg | tcc | cca | gag | cct | ggg | | 975 |
| Thr | Ile | His | Asn | Ala | Thr | Leu | Gly | Arg | Ile | Val | Ser | Pro | Glu | Pro | Gly | | |
| | | | 285 | | | | | 290 | | | | | 295 | | | | |
| gga | gcc | gta | ggg | ccc | aac | ctc | acc | tgc | cgt | tgg | gtc | att | gaa | gca | gct | | 1023 |
| Gly | Ala | Val | Gly | Pro | Asn | Leu | Thr | Cys | Arg | Trp | Val | Ile | Glu | Ala | Ala | | |
| | | 300 | | | | | 305 | | | | | 310 | | | | | |
| gag | ggg | cgc | cgg | ctg | cac | ctg | cac | ttt | gaa | agg | gtc | tcg | ctg | gat | gag | | 1071 |
| Glu | Gly | Arg | Arg | Leu | His | Leu | His | Phe | Glu | Arg | Val | Ser | Leu | Asp | Glu | | |
| | 315 | | | | | 320 | | | | | 325 | | | | | | |
| gac | aat | gac | cgg | ctg | atg | gtg | cgc | tca | ggg | ggc | agc | ccc | cta | tcc | ccc | | 1119 |
| Asp | Asn | Asp | Arg | Leu | Met | Val | Arg | Ser | Gly | Gly | Ser | Pro | Leu | Ser | Pro | | |
| | 330 | | | | 335 | | | | | 340 | | | | | 345 | | |
| gtg | atc | tat | gat | tcg | gac | atg | gac | gat | gtc | ccc | gag | cgg | ggg | ctc | atc | | 1167 |
| Val | Ile | Tyr | Asp | Ser | Asp | Met | Asp | Asp | Val | Pro | Glu | Arg | Gly | Leu | Ile | | |
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| agt | gac | gcc | cag | tcc | ctc | tac | gtg | gag | ctg | ctg | tca | gag | aca | cct | gcc | | 1215 |
| Ser | Asp | Ala | Gln | Ser | Leu | Tyr | Val | Glu | Leu | Leu | Ser | Glu | Thr | Pro | Ala | | |
| | | | 365 | | | | | 370 | | | | | 375 | | | | |
| aat | ccc | ctg | ctg | tta | agc | ctt | cga | ttt | gaa | gcc | ttt | gag | gag | gat | cgc | | 1263 |
| Asn | Pro | Leu | Leu | Leu | Ser | Leu | Arg | Phe | Glu | Ala | Phe | Glu | Glu | Asp | Arg | | |
| | | 380 | | | | | 385 | | | | | 390 | | | | | |
| tgc | ttc | gcc | ccc | ttc | ctg | gca | cat | gga | aat | gtc | act | acc | acg | gac | cct | | 1311 |
| Cys | Phe | Ala | Pro | Phe | Leu | Ala | His | Gly | Asn | Val | Thr | Thr | Thr | Asp | Pro | | |
| | 395 | | | | | 400 | | | | | 405 | | | | | | |
| gag | tat | cgc | cca | ggg | gca | ctg | gca | acc | ttc | tcg | tgc | ctc | cca | gga | tat | | 1359 |
| Glu | Tyr | Arg | Pro | Gly | Ala | Leu | Ala | Thr | Phe | Ser | Cys | Leu | Pro | Gly | Tyr | | |
| | 410 | | | | 415 | | | | | 420 | | | | 425 | | | |
| gcc | ctg | gag | ccc | cct | ggg | ccc | ccc | aat | gcc | atc | gaa | tgt | gtg | gat | ccc | | 1407 |
| Ala | Leu | Glu | Pro | Pro | Gly | Pro | Pro | Asn | Ala | Ile | Glu | Cys | Val | Asp | Pro | | |
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| aca | gaa | ccc | cac | tgg | aac | gac | aca | gag | ccg | gcc | tgc | aaa | gcc | atg | tgt | | 1455 |
| Thr | Glu | Pro | His | Trp | Asn | Asp | Thr | Glu | Pro | Ala | Cys | Lys | Ala | Met | Cys | | |
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| gga | ggg | gag | ctg | tcg | gaa | cca | gct | ggc | gtg | gtc | ctc | tct | ccc | gac | tgg | | 1503 |
| Gly | Gly | Glu | Leu | Ser | Glu | Pro | Ala | Gly | Val | Val | Leu | Ser | Pro | Asp | Trp | | |
| | | 460 | | | | | 465 | | | | | 470 | | | | | |
| ccc | cag | agc | tat | agc | ccg | ggc | caa | gac | tgc | gtg | tgg | ggc | gtg | cac | gtc | | 1551 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Pro | Gln | Ser | Tyr | Ser | Pro | Gly | Gln | Asp | Cys | Val | Trp | Gly | Val | His | Val | |
| 475 | | | | | | 480 | | | | | 485 | | | | | |
| cag | gaa | gag | aag | cgc | atc | ttg | ctc | caa | gtt | gag | ata | ttg | aat | gtg | cgg | 1599 |
| Gln | Glu | Glu | Lys | Arg | Ile | Leu | Leu | Gln | Val | Glu | Ile | Leu | Asn | Val | Arg | |
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| gaa | ggg | gac | atg | ctg | acg | ctg | ttt | gac | ggg | gac | ggg | ccc | agc | gcc | cga | 1647 |
| Glu | Gly | Asp | Met | Leu | Thr | Leu | Phe | Asp | Gly | Asp | Gly | Pro | Ser | Ala | Arg | |
| | | | | 510 | | | | | 515 | | | | | 520 | | |
| gtc | ttg | gcc | cag | ctg | cgg | gga | cct | cag | ccg | cgc | cgc | cgc | ctt | ctc | tcc | 1695 |
| Val | Leu | Ala | Gln | Leu | Arg | Gly | Pro | Gln | Pro | Arg | Arg | Arg | Leu | Leu | Ser | |
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| tct | ggg | ccc | gac | ctc | aca | ctg | cag | ttt | cag | gca | ccg | ccc | ggg | ccc | cca | 1743 |
| Ser | Gly | Pro | Asp | Leu | Thr | Leu | Gln | Phe | Gln | Ala | Pro | Pro | Gly | Pro | Pro | |
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| aat | cca | ggc | ctg | ggc | cag | ggc | ttc | gta | ttg | cac | ttc | aaa | gag | gtc | ccg | 1791 |
| Asn | Pro | Gly | Leu | Gly | Gln | Gly | Phe | Val | Leu | His | Phe | Lys | Glu | Val | Pro | |
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| Arg | Asn | Asp | Thr | Cys | Pro | Glu | Leu | Pro | Pro | Pro | Glu | Trp | Gly | Trp | Arg | |
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| acg | gca | tcc | cac | ggg | gac | ctg | atc | cgg | ggc | acg | gtg | ctc | acc | tac | cag | 1887 |
| Thr | Ala | Ser | His | Gly | Asp | Leu | Ile | Arg | Gly | Thr | Val | Leu | Thr | Tyr | Gln | |
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| tgc | gag | cct | ggc | tac | gag | ctg | cta | ggc | tcc | gac | att | ctc | act | tgc | cag | 1935 |
| Cys | Glu | Pro | Gly | Tyr | Glu | Leu | Leu | Gly | Ser | Asp | Ile | Leu | Thr | Cys | Gln | |
| | | | 605 | | | | | 610 | | | | | 615 | | | |
| tgg | gac | ctg | tct | tgg | agc | gcc | gcg | ccg | ccc | gcc | tgc | caa | aag | atc | atg | 1983 |
| Trp | Asp | Leu | Ser | Trp | Ser | Ala | Ala | Pro | Pro | Ala | Cys | Gln | Lys | Ile | Met | |
| | | 620 | | | | | 625 | | | | | 630 | | | | |
| act | tgt | gct | gac | cct | ggc | gag | att | gcc | aac | ggg | cac | cgc | acc | gcc | tgc | 2031 |
| Thr | Cys | Ala | Asp | Pro | Gly | Glu | Ile | Ala | Asn | Gly | His | Arg | Thr | Ala | Ser | |
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| gac | gcc | ggc | ttc | ccc | gtt | ggc | tcc | cac | gtc | cag | tac | cgc | tgc | ctg | cca | 2079 |
| Asp | Ala | Gly | Phe | Pro | Val | Gly | Ser | His | Val | Gln | Tyr | Arg | Cys | Leu | Pro | |
| 650 | | | | | 655 | | | | | 660 | | | | | 665 | |
| ggg | tac | agc | ctc | gag | ggg | gca | gcc | atg | ctc | acc | tgc | tac | agc | cgg | gac | 2127 |
| Gly | Tyr | Ser | Leu | Glu | Gly | Ala | Ala | Met | Leu | Thr | Cys | Tyr | Ser | Arg | Asp | |
| | | | | 670 | | | | | 675 | | | | | 680 | | |
| aca | ggc | aca | ccc | aag | tgg | agc | gat | agg | gtc | ccc | aaa | tgc | gcc | ttg | aag | 2175 |
| Thr | Gly | Thr | Pro | Lys | Trp | Ser | Asp | Arg | Val | Pro | Lys | Cys | Ala | Leu | Lys | |
| | | | | 685 | | | | 690 | | | | | 695 | | | |
| tac | gag | ccg | tgc | ctg | aac | ccg | ggg | gtt | ccc | gag | aat | ggc | tac | cag | acg | 2223 |
| Tyr | Glu | Pro | Cys | Leu | Asn | Pro | Gly | Val | Pro | Glu | Asn | Gly | Tyr | Gln | Thr | |
| | | 700 | | | | | 705 | | | | | 710 | | | | |
| ctg | tac | aag | cac | cac | tac | cag | gcg | ggc | gag | tct | ctg | cgc | ttc | ttc | tgc | 2271 |
| Leu | Tyr | Lys | His | His | Tyr | Gln | Ala | Gly | Glu | Ser | Leu | Arg | Phe | Phe | Cys | |
| | 715 | | | | | 720 | | | | | 725 | | | | | |
| tat | gag | ggc | ttt | gag | ctt | atc | ggc | gag | gtc | acc | atc | acc | tgt | gtg | ccc | 2319 |

| | | | | | | | | | | | | | | | | |
|-------------|------------|-------------|-------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----------|-----|-----|------|
| Tyr | Glu | Gly | Phe | Glu | Leu | Ile | Gly | Glu | Val | Thr | Ile | Thr | Cys | Val | Pro | |
| 730 | | | | | 735 | | | | | 740 | | | | | 745 | |
| ggc | cac | ccc | tcc | cag | tgg | acc | agc | cag | ccc | cca | ctc | tgc | aaa | gtt | gcc | 2367 |
| Gly | His | Pro | Ser | Gln | Trp | Thr | Ser | Gln | Pro | Pro | Leu | Cys | Lys | Val | Ala | |
| | | | | 750 | | | | | 755 | | | | | 760 | | |
| tat | gag | gag | ctc | ctg | gac | aac | cga | aaa | ctg | gaa | gtg | acc | cag | acc | aca | 2415 |
| Tyr | Glu | Glu | Leu | Leu | Asp | Asn | Arg | Lys | Leu | Glu | Val | Thr | Gln | Thr | Thr | |
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| gat | cca | tca | cgg | cag | ctg | gaa | ggg | ggg | aac | ctg | gcc | ctg | gcc | atc | ctg | 2463 |
| Asp | Pro | Ser | Arg | Gln | Leu | Glu | Gly | Gly | Asn | Leu | Ala | Leu | Ala | Ile | Leu | |
| | | 780 | | | | | 785 | | | | | 790 | | | | |
| ctg | cct | cta | ggc | ttg | gtc | att | gtc | ctc | ggc | agt | ggc | gtt | tac | atc | tac | 2511 |
| Leu | Pro | Leu | Gly | Leu | Val | Ile | Val | Leu | Gly | Ser | Gly | Val | Tyr | Ile | Tyr | |
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| tac | acc | aag | ctt | cag | gga | aag | tcc | ctt | ttc | ggc | ttc | tcg | ggc | tcc | cac | 2559 |
| Tyr | Thr | Lys | Leu | Gln | Gly | Lys | Ser | Leu | Phe | Gly | Phe | Ser | Gly | Ser | His | |
| 810 | | | | | 815 | | | | | 820 | | | | | 825 | |
| tcc | tac | agc | ccc | atc | acc | gtg | gag | tcg | gac | ttc | agc | aac | ccg | ctg | tat | 2607 |
| Ser | Tyr | Ser | Pro | Ile | Thr | Val | Glu | Ser | Asp | Phe | Ser | Asn | Pro | Leu | Tyr | |
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| gaa | gct | ggg | gat | acg | cgg | gag | tat | gaa | gtt | tcc | atc | tga | acccaagac | | | 2656 |
| Glu | Ala | Gly | Asp | Thr | Arg | Glu | Tyr | Glu | Val | Ser | Ile | * | | | | |
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| tacagctgca | ggacccagga | cgccccctccc | ctcctcattc | gggcagaggg | aaatacggga | | | | | | | | | | | 2716 |
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| cgggcttctc agcaccgccg aaccggcacc ggcgctgtcc agaccgaggc c atg aag | 177 |
| | Met Lys |
| | 1 |
| cag att ctc ggg gtg atc gac aag aaa ctt cgg aac ctg gag aag aaa | 225 |
| Gln Ile Leu Gly Val Ile Asp Lys Lys Leu Arg Asn Leu Glu Lys Lys | |
| 5 10 15 | |
| aag ggt aag ctt gat gat tac cag gaa cga atg aac aaa ggg gaa agg | 273 |
| Lys Gly Lys Leu Asp Asp Tyr Gln Glu Arg Met Asn Lys Gly Glu Arg | |
| 20 25 30 | |
| ctt aat caa gat cag ctg gat gcc gtt tct aag tac cag gaa gtc aca | 321 |
| Leu Asn Gln Asp Gln Leu Asp Ala Val Ser Lys Tyr Gln Glu Val Thr | |
| 35 40 45 50 | |
| aat aat ttg gag ttt gca aaa gaa tta cag agg agt ttc atg gca cta | 369 |
| Asn Asn Leu Glu Phe Ala Lys Glu Leu Gln Arg Ser Phe Met Ala Leu | |
| 55 60 65 | |
| agt caa gat att cag aaa aca ata aag aag aca gca cgt cgg gag cag | 417 |
| Ser Gln Asp Ile Gln Lys Thr Ile Lys Lys Thr Ala Arg Arg Glu Gln | |
| 70 75 80 | |
| ctt atg aga gaa gaa gct gaa cag aaa cgt tta aaa act gta ctt gag | 465 |
| Leu Met Arg Glu Glu Ala Glu Gln Lys Arg Leu Lys Thr Val Leu Glu | |
| 85 90 95 | |
| cta cag tat gtt ttg gac aaa ttg gga gat gat gaa gtg cgg act gac | 513 |
| Leu Gln Tyr Val Leu Asp Lys Leu Gly Asp Asp Glu Val Arg Thr Asp | |
| 100 105 110 | |
| ctg aaa caa ggt ttg aat gga gtg cca ata ttg tcc gaa gag gag ttg | 561 |
| Leu Lys Gln Gly Leu Asn Gly Val Pro Ile Leu Ser Glu Glu Glu Leu | |
| 115 120 125 130 | |
| tca ttg ttg gat gaa ttc tat aag cta gta gac cct gaa cgg gac atg | 609 |
| Ser Leu Leu Asp Glu Phe Tyr Lys Leu Val Asp Pro Glu Arg Asp Met | |
| 135 140 145 | |
| agc ttg agg ttg aat gaa cag tat gaa cat gcc tcc att cac ctg tgg | 657 |
| Ser Leu Arg Leu Asn Glu Gln Tyr Glu His Ala Ser Ile His Leu Trp | |
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| gac ctg ctg gaa ggg aag gaa aaa cct gta tgt gga acc acc tat aaa | 705 |
| Asp Leu Leu Glu Gly Lys Glu Lys Pro Val Cys Gly Thr Thr Tyr Lys | |
| 165 170 175 | |
| gtt cta aag gaa att gtt gag cgt gtt ttt cag tca aac tac ttt gac | 753 |
| Val Leu Lys Glu Ile Val Glu Arg Val Phe Gln Ser Asn Tyr Phe Asp | |
| 180 185 190 | |
| agc acc cac aac cac cag aat ggg ctg tgt gag gaa gaa gag gca gcc | 801 |
| Ser Thr His Asn His Gln Asn Gly Leu Cys Glu Glu Glu Glu Ala Ala | |
| 195 200 205 210 | |
| tca gca cct gca gtt gaa gac cag gta cct gaa gct gaa cct gag cca | 849 |
| Ser Ala Pro Ala Val Glu Asp Gln Val Pro Glu Ala Glu Pro Glu Pro | |
| 215 220 225 | |

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| gca gaa gag tac act gag caa agt gaa gtt gaa tca aca gag tat gta Ala Glu Glu Tyr Thr Glu Gln Ser Glu Val Glu Ser Thr Glu Tyr Val 230 235 240 | 897 |
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| cag gta gat gag tgg aca gtt gaa acg gtt gag gtg gta aat tca ctc Gln Val Asp Glu Trp Thr Val Glu Thr Val Glu Val Val Asn Ser Leu 260 265 270 | 993 |
| cag cag caa cct cag gct gca tcc cct tca gta cca gag ccc cac tct Gln Gln Gln Pro Gln Ala Ala Ser Pro Ser Val Pro Glu Pro His Ser 275 280 285 290 | 1041 |
| ttg act cca gtg gct cag gca gat ccc ctt gtg aga aga cag cga gta Leu Thr Pro Val Ala Gln Ala Asp Pro Leu Val Arg Arg Gln Arg Val 295 300 305 | 1089 |
| caa gac ctt atg gca caa atg cag ggt ccc gat aat ttc ata cag gat Gln Asp Leu Met Ala Gln Met Gln Gly Pro Asp Asn Phe Ile Gln Asp 310 315 320 | 1137 |
| tca atg ctg gat ttt gaa aat cag aca ctt gat cct gcc att gta tct Ser Met Leu Asp Phe Glu Asn Gln Thr Leu Asp Pro Ala Ile Val Ser 325 330 335 | 1185 |
| gca cag cct atg aat cca aca caa aac atg gac atg ccc cag ctg gtt Ala Gln Pro Met Asn Pro Thr Gln Asn Met Asp Met Pro Gln Leu Val 340 345 350 | 1233 |
| tgc cct cca gtt cat tct gaa tct aga ctt gct cag cct aat caa gtt Cys Pro Pro Val His Ser Glu Ser Arg Leu Ala Gln Pro Asn Gln Val 355 360 365 370 | 1281 |
| cct gta caa cca gaa gcg aca cag gtt cct ttg gta tca tcc aca agt Pro Val Gln Pro Glu Ala Thr Gln Val Pro Leu Val Ser Ser Thr Ser 375 380 385 | 1329 |
| gag ggg tac aca gca tct caa ccc ttg tac cag cct tct cat gct aca Glu Gly Tyr Thr Ala Ser Gln Pro Leu Tyr Gln Pro Ser His Ala Thr 390 395 400 | 1377 |
| gag caa cga cca cag aag gaa cca att gat cag att cag gca aca atc Glu Gln Arg Pro Gln Lys Glu Pro Ile Asp Gln Ile Gln Ala Thr Ile 405 410 415 | 1425 |
| tct tta aat aca gac cag act aca gca tca tca tcc ctt cct gct gcg Ser Leu Asn Thr Asp Gln Thr Thr Ala Ser Ser Ser Leu Pro Ala Ala 420 425 430 | 1473 |
| tct cag cct caa gta ttt cag gct ggg aca agc aaa cct tta cat agc Ser Gln Pro Gln Val Phe Gln Ala Gly Thr Ser Lys Pro Leu His Ser 435 440 445 450 | 1521 |
| agt gga atc aat gta aat gca gct cca ttc caa tcc atg caa acg gtg Ser Gly Ile Asn Val Asn Ala Ala Pro Phe Gln Ser Met Gln Thr Val 455 460 465 | 1569 |
| ttc aat atg aat gcc cca gtt cct cct gtt aat gaa cca gaa act tta Phe Asn Met Asn Ala Pro Val Pro Pro Val Asn Glu Pro Glu Thr Leu 470 475 480 | 1617 |

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|---|------|
| aaa cag caa aat cag tac cag gcc agt tat aac cag agc ttt tct agt | 1665 |
| Lys Gln Gln Asn Gln Tyr Gln Ala Ser Tyr Asn Gln Ser Phe Ser Ser | |
| 485 490 495 | |
| cag cct cac caa gta gaa caa aca gag ctt cag caa gaa cag ctt caa | 1713 |
| Gln Pro His Gln Val Glu Gln Thr Glu Leu Gln Gln Glu Gln Leu Gln | |
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| aca gtg gtt ggc act tac cat ggt tcc cca gac cag tcc cat caa gtg | 1761 |
| Thr Val Val Gly Thr Tyr His Gly Ser Pro Asp Gln Ser His Gln Val | |
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| Thr Gly Asn His Gln Gln Pro Pro Gln Gln Asn Thr Gly Phe Pro Arg | |
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| agc aat cag ccc tat tac aat agt cgt ggt gtg tct cgt gga ggc tcc | 1857 |
| Ser Asn Gln Pro Tyr Tyr Asn Ser Arg Gly Val Ser Arg Gly Gly Ser | |
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| Arg Gly Ala Arg Gly Leu Met Asn Gly Tyr Arg Gly Pro Ala Met Asp | |
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| tca gag gag gat atg atg gtt acc gcc ctt cat tct cta aca ctc caa | 1953 |
| Ser Glu Glu Asp Met Met Val Thr Ala Leu His Ser Leu Thr Leu Gln | |
| 580 585 590 | |
| aca gtg gtt ata cac agt ctc agt tca gtg ctc ccc ggg att act ctg | 2001 |
| Thr Val Val Ile His Ser Leu Ser Ser Val Leu Pro Gly Ile Thr Leu | |
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| gct atc aac ggg atg gat atc agc aga att tca agc gag gct ctg ggc | 2049 |
| Ala Ile Asn Gly Met Asp Ile Ser Arg Ile Ser Ser Glu Ala Leu Gly | |
| 615 620 625 | |
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| Pro Thr Glu Gly Cys Arg Lys * | |
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 1 5 10 15
 ctt cag aat tct gtg tta gct gaa gat ggg gaa gta aga tca agt tgt 94
 Leu Gln Asn Ser Val Leu Ala Glu Asp Gly Glu Val Arg Ser Ser Cys
 20 25 30
 cgt act gct ccg aca gat tta gtt ttc atc tta gat ggc tct tat agt 142
 Arg Thr Ala Pro Thr Asp Leu Val Phe Ile Leu Asp Gly Ser Tyr Ser
 35 40 45
 gtt ggc cca gaa aac ttt gaa ata gtg aaa aag tgg ctt gtc aat atc 190
 Val Gly Pro Glu Asn Phe Glu Ile Val Lys Lys Trp Leu Val Asn Ile
 50 55 60
 aca aaa aac ttt gac ata ggg ccg aag ttt att caa gtt gga gtg gtt 238
 Thr Lys Asn Phe Asp Ile Gly Pro Lys Phe Ile Gln Val Gly Val Val
 65 70 75
 caa tat agt gac tac cct gtg ctg gag att cct ctc gga agc tat gat 286
 Gln Tyr Ser Asp Tyr Pro Val Leu Glu Ile Pro Leu Gly Ser Tyr Asp
 80 85 90 95
 tca gga gaa cat ttg acg gca gca gtg gaa tcc ata ctc tac tta gga 334
 Ser Gly Glu His Leu Thr Ala Ala Val Glu Ser Ile Leu Tyr Leu Gly
 100 105 110
 gga aac aca aag aca ggg aag gcc atc cag ttt gcg ctc gat tac ctt 382
 Gly Asn Thr Lys Thr Gly Lys Ala Ile Gln Phe Ala Leu Asp Tyr Leu
 115 120 125
 ttt gcc aag tcc tca cga ttt ctg act aag ata gca gtg gta ctt acg 430

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Phe | Ala | Lys | Ser | Ser | Arg | Phe | Leu | Thr | Lys | Ile | Ala | Val | Val | Leu | Thr | | |
| | | 130 | | | | | 135 | | | | | 140 | | | | | |
| gat | ggc | aaa | tcc | caa | gat | gac | gtc | aag | gat | gca | gct | caa | gca | gca | aga | 478 | |
| Asp | Gly | Lys | Ser | Gln | Asp | Asp | Val | Lys | Asp | Ala | Ala | Gln | Ala | Ala | Arg | | |
| | | 145 | | | | | 150 | | | | 155 | | | | | | |
| gat | agt | aag | ata | aca | tta | ttt | gct | att | ggg | gtt | ggg | tca | gaa | aca | gaa | 526 | |
| Asp | Ser | Lys | Ile | Thr | Leu | Phe | Ala | Ile | Gly | Val | Gly | Ser | Glu | Thr | Glu | | |
| | | | | | 165 | | | | | 170 | | | | | 175 | | |
| gat | gcc | gaa | ctt | aga | gct | att | gcc | aac | aag | cct | tcg | tct | act | tat | gtg | 574 | |
| Asp | Ala | Glu | Leu | Arg | Ala | Ile | Ala | Asn | Lys | Pro | Ser | Ser | Thr | Tyr | Val | | |
| | | | | 180 | | | | | 185 | | | | | | 190 | | |
| ttt | tat | gtg | gaa | gac | tat | att | gca | ata | tcc | aaa | ata | agg | gaa | gtg | atg | 622 | |
| Phe | Tyr | Val | Glu | Asp | Tyr | Ile | Ala | Ile | Ser | Lys | Ile | Arg | Glu | Val | Met | | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| aag | cag | aaa | ctt | tgt | gaa | gaa | tct | gtc | tgt | cca | aca | cga | att | cca | gtg | 670 | |
| Lys | Gln | Lys | Leu | Cys | Glu | Glu | Ser | Val | Cys | Pro | Thr | Arg | Ile | Pro | Val | | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| gca | gct | cgt | gat | gaa | agg | gga | ttt | gat | att | ctt | tta | ggg | tta | gat | gta | 718 | |
| Ala | Ala | Arg | Asp | Glu | Arg | Gly | Phe | Asp | Ile | Leu | Leu | Gly | Leu | Asp | Val | | |
| | | 225 | | | | 230 | | | | | 235 | | | | | | |
| aat | aaa | aag | gtt | aag | aaa | aga | ata | cag | ctt | tca | cca | aaa | aag | ata | aaa | 766 | |
| Asn | Lys | Lys | Val | Lys | Lys | Arg | Ile | Gln | Leu | Ser | Pro | Lys | Lys | Ile | Lys | | |
| | | | | | 245 | | | | | 250 | | | | | 255 | | |
| gga | tat | gaa | gta | aca | tca | aaa | gtt | gat | tta | tca | gaa | ctc | aca | agc | aat | 814 | |
| Gly | Tyr | Glu | Val | Thr | Ser | Lys | Val | Asp | Leu | Ser | Glu | Leu | Thr | Ser | Asn | | |
| | | | | 260 | | | | | 265 | | | | | | 270 | | |
| gtt | ttc | cca | gaa | ggg | ctt | cct | cca | tca | tat | gta | ttt | gtg | tct | act | caa | 862 | |
| Val | Phe | Pro | Glu | Gly | Leu | Pro | Pro | Ser | Tyr | Val | Phe | Val | Ser | Thr | Gln | | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| aga | ttt | aaa | gtc | aag | aaa | att | tgg | gat | tta | tgg | aga | ata | tta | act | att | 910 | |
| Arg | Phe | Lys | Val | Lys | Lys | Ile | Trp | Asp | Leu | Trp | Arg | Ile | Leu | Thr | Ile | | |
| | | 290 | | | | | 295 | | | | | 300 | | | | | |
| gat | gga | agg | cca | caa | ata | gca | gtt | acc | tta | aat | ggg | gtg | gac | aaa | atc | 958 | |
| Asp | Gly | Arg | Pro | Gln | Ile | Ala | Val | Thr | Leu | Asn | Gly | Val | Asp | Lys | Ile | | |
| | | 305 | | | | 310 | | | | | 315 | | | | | | |
| tta | tta | ttt | aca | aca | acc | agc | gta | att | aat | ggc | tca | caa | gtg | gtt | acc | 1006 | |
| Leu | Leu | Phe | Thr | Thr | Thr | Ser | Val | Ile | Asn | Gly | Ser | Gln | Val | Val | Thr | | |
| | | | | | 325 | | | | | 330 | | | | | 335 | | |
| ttt | gct | aac | cct | caa | gtt | aag | acg | ttg | ttt | gat | gaa | ggc | tgg | cac | caa | 1054 | |
| Phe | Ala | Asn | Pro | Gln | Val | Lys | Thr | Leu | Phe | Asp | Glu | Gly | Trp | His | Gln | | |
| | | | | 340 | | | | | 345 | | | | | | 350 | | |
| att | cgt | ctc | tta | gta | aca | gaa | caa | gat | gtg | act | ttg | tat | att | gat | gac | 1102 | |
| Ile | Arg | Leu | Leu | Val | Thr | Glu | Gln | Asp | Val | Thr | Leu | Tyr | Ile | Asp | Asp | | |
| | | | | 355 | | | | 360 | | | | | | | 365 | | |
| caa | caa | att | gaa | aac | aag | ccc | tta | cat | cca | gtt | tta | ggg | atc | ttg | atc | 1150 | |
| Gln | Gln | Ile | Glu | Asn | Lys | Pro | Leu | His | Pro | Val | Leu | Gly | Ile | Leu | Ile | | |
| | | 370 | | | | | 375 | | | | | 380 | | | | | |
| aat | ggg | caa | acc | caa | att | gga | aaa | tat | tct | gga | aaa | gaa | gaa | act | gtt | 1198 | |

| | | | | | | | | | | | | | | | | |
|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Asn | Gly | Gln | Thr | Gln | Ile | Gly | Lys | Tyr | Ser | Gly | Lys | Glu | Glu | Thr | Val | |
| 385 | | | | | | 390 | | | | | 395 | | | | | |
| cag | ttt | gat | gtc | caa | aag | ttg | cga | atc | tac | tgt | gac | cca | gaa | cag | aac | 1246 |
| Gln | Phe | Asp | Val | Gln | Lys | Leu | Arg | Ile | Tyr | Cys | Asp | Pro | Glu | Gln | Asn | |
| 400 | | | | | 405 | | | | | 410 | | | | | 415 | |
| aac | cgg | gag | aca | gca | tgt | gag | att | cct | gga | ttt | tgc | ctt | aat | ggc | ccc | 1294 |
| Asn | Arg | Glu | Thr | Ala | Cys | Glu | Ile | Pro | Gly | Phe | Cys | Leu | Asn | Gly | Pro | |
| | | | | 420 | | | | | 425 | | | | | 430 | | |
| agt | gat | gta | ggc | tca | act | cca | gct | ccc | tgt | att | tgt | cct | ccg | gga | aaa | 1342 |
| Ser | Asp | Val | Gly | Ser | Thr | Pro | Ala | Pro | Cys | Ile | Cys | Pro | Pro | Gly | Lys | |
| | | | 435 | | | | | 440 | | | | | | 445 | | |
| cca | gga | ctt | caa | ggc | ccc | aaa | ggc | gac | cct | gga | ctg | cct | ggg | aac | cct | 1390 |
| Pro | Gly | Leu | Gln | Gly | Pro | Lys | Gly | Asp | Pro | Gly | Leu | Pro | Gly | Asn | Pro | |
| | | 450 | | | | | 455 | | | | | 460 | | | | |
| ggc | tac | cct | gga | caa | cct | ggc | caa | gat | ggc | aag | cct | gtg | agt | act | gaa | 1438 |
| Gly | Tyr | Pro | Gly | Gln | Pro | Gly | Gln | Asp | Gly | Lys | Pro | Val | Ser | Thr | Glu | |
| | 465 | | | | | 470 | | | | | 475 | | | | | |
| agc | tta | gtc | atc | tcc | ggc | ata | tct | ggg | att | aca | gga | tat | cag | gga | att | 1486 |
| Ser | Leu | Val | Ile | Ser | Gly | Ile | Ser | Gly | Ile | Thr | Gly | Tyr | Gln | Gly | Ile | |
| 480 | | | | | 485 | | | | | 490 | | | | | 495 | |
| gca | ggg | aca | cca | ggc | gtt | cca | gga | tct | cca | gga | ata | caa | gga | gct | cga | 1534 |
| Ala | Gly | Thr | Pro | Gly | Val | Pro | Gly | Ser | Pro | Gly | Ile | Gln | Gly | Ala | Arg | |
| | | | | 500 | | | | | 505 | | | | | 510 | | |
| gga | cta | cca | ggc | tac | aaa | gga | gaa | cca | ggg | cga | gat | ggc | gac | aag | ggc | 1582 |
| Gly | Leu | Pro | Gly | Tyr | Lys | Gly | Glu | Pro | Gly | Arg | Asp | Gly | Asp | Lys | Gly | |
| | | | 515 | | | | | 520 | | | | | 525 | | | |
| gat | cgt | gga | ctt | cct | ggc | ttt | cct | ggg | ctt | cat | ggc | atg | cca | gga | tca | 1630 |
| Asp | Arg | Gly | Leu | Pro | Gly | Phe | Pro | Gly | Leu | His | Gly | Met | Pro | Gly | Ser | |
| | | 530 | | | | | 535 | | | | | 540 | | | | |
| aag | ggc | gaa | atg | ggc | gcc | aaa | gga | gac | aaa | gga | tca | cct | gga | ttt | tat | 1678 |
| Lys | Gly | Glu | Met | Gly | Ala | Lys | Gly | Asp | Lys | Gly | Ser | Pro | Gly | Phe | Tyr | |
| | 545 | | | | | 550 | | | | | 555 | | | | | |
| ggc | aaa | aag | gga | agt | ata | gat | cac | aca | aca | aag | tat | tca | tat | tga | act | 1726 |
| Gly | Lys | Lys | Gly | Ser | Ile | Asp | His | Thr | Thr | Lys | Tyr | Ser | Tyr | * | | |
| 560 | | | | | 565 | | | | | 570 | | | | | | |
| tttaatgtaa | tggaacaga | aaactagaat | tgcagttcta | acccagcatt | agaacagtta | | | | | | | | | | | 1786 |
| gctctgttca | cccttcttag | gggattaatt | cagaacaatg | | | | | | | | | | | | | 1826 |

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2154

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| Asn Thr Ala Ile Ser His Pro Ser Pro Leu Pro Pro Leu Pro Ser Gln | |
| 235 240 245 | |
| cag cac cac cag cag caa agt ctt tca gga tac agt act cta acg tgg | 941 |
| Gln His His Gln Gln Gln Ser Leu Ser Gly Tyr Ser Thr Leu Thr Trp | |
| 250 255 260 | |
| tca tct cca ggc ctt cca tcg act caa gac aat ctc atc cga aac cac | 989 |
| Ser Ser Pro Gly Leu Pro Ser Thr Gln Asp Asn Leu Ile Arg Asn His | |
| 265 270 275 | |
| aca gga tcc ctg gct gta gcg aac aac aac cca acc att act gtt gca | 1037 |
| Thr Gly Ser Leu Ala Val Ala Asn Asn Asn Pro Thr Ile Thr Val Ala | |
| 280 285 290 | |
| gat tct tta tcc tgt cct gtt atg caa aat gtt cag cct ccc aag tcc | 1085 |
| Asp Ser Leu Ser Cys Pro Val Met Gln Asn Val Gln Pro Pro Lys Ser | |
| 295 300 305 310 | |
| agc cca gtg gta tcc act gtt tta tca gga tcc tca gga tcc tca tca | 1133 |
| Ser Pro Val Val Ser Thr Val Leu Ser Gly Ser Ser Gly Ser Ser Ser | |
| 315 320 325 | |
| aca aga aca cct ccc act gca aat cac cca gtt gag cct gtg acc tca | 1181 |
| Thr Arg Thr Pro Pro Thr Ala Asn His Pro Val Glu Pro Val Thr Ser | |
| 330 335 340 | |
| gtt aca cag cca tca gag cta tta caa caa aaa ggc gtg cag tat ggt | 1229 |
| Val Thr Gln Pro Ser Glu Leu Leu Gln Gln Lys Gly Val Gln Tyr Gly | |
| 345 350 355 | |
| gaa tat gtt aat aac caa gct agc tcc gca cca act ccc ttg tca tca | 1277 |
| Glu Tyr Val Asn Asn Gln Ala Ser Ser Ala Pro Thr Pro Leu Ser Ser | |
| 360 365 370 | |
| act tcc gat gat gag gaa gag gag gag gag gat gag gaa gca ggt gtt | 1325 |
| Thr Ser Asp Asp Glu Glu Glu Glu Glu Glu Asp Glu Glu Ala Gly Val | |
| 375 380 385 390 | |
| gac agc tct tct acc aca agc agt gct tct cca atg ccc aac agt tat | 1373 |
| Asp Ser Ser Ser Thr Thr Ser Ser Ala Ser Pro Met Pro Asn Ser Tyr | |
| 395 400 405 | |
| gat gcc ctg gaa gga ggc agt tac cca gat atg ctt tct tca tca gca | 1421 |
| Asp Ala Leu Glu Gly Gly Ser Tyr Pro Asp Met Leu Ser Ser Ser Ala | |
| 410 415 420 | |
| agc agt cct gct cct gat ccc gcc cct gaa cct gat cct gct tct gct | 1469 |
| Ser Ser Pro Ala Pro Asp Pro Ala Pro Glu Pro Asp Pro Ala Ser Ala | |
| 425 430 435 | |
| cca gct cca gct tca gct cca gct cct gtc gtc cct cag cct tca aaa | 1517 |
| Pro Ala Pro Ala Ser Ala Pro Ala Pro Val Val Pro Gln Pro Ser Lys | |
| 440 445 450 | |
| atg gct aag cct ttg gct atg gct atc caa cac ttc agc ctg gtt atc | 1565 |
| Met Ala Lys Pro Leu Ala Met Ala Ile Gln His Phe Ser Leu Val Ile | |
| 455 460 465 470 | |
| aga atg cta cag cac cac tta ttt ctg gag tac agc ccc agt aac ccg | 1613 |
| Arg Met Leu Gln His His Leu Phe Leu Glu Tyr Ser Pro Ser Asn Pro | |
| 475 480 485 | |

| | |
|---|------|
| gta tat tct gga ttc cag cag tat cct caa cag tat cct ggt gtg aac | 1661 |
| Val Tyr Ser Gly Phe Gln Gln Tyr Pro Gln Gln Tyr Pro Gly Val Asn | |
| 490 495 500 | |
| cag cta tcc tcc agt ata gga gga ttg agt ctt cag agt tct cca caa | 1709 |
| Gln Leu Ser Ser Ser Ile Gly Gly Leu Ser Leu Gln Ser Ser Pro Gln | |
| 505 510 515 | |
| cca gaa agc ctg aga cct gta aac ctt act cag gag agg aat att tta | 1757 |
| Pro Glu Ser Leu Arg Pro Val Asn Leu Thr Gln Glu Arg Asn Ile Leu | |
| 520 525 530 | |
| cct atg act cct gtt tgg gct cct gta cct aac ttg aat gca gac ctc | 1805 |
| Pro Met Thr Pro Val Trp Ala Pro Val Pro Asn Leu Asn Ala Asp Leu | |
| 535 540 545 550 | |
| aaa aaa tta aac tgt agc cca gat tca ttt cgg tgt act ttg aca aat | 1853 |
| Lys Lys Leu Asn Cys Ser Pro Asp Ser Phe Arg Cys Thr Leu Thr Asn | |
| 555 560 565 | |
| att cca cag aca cag gct tta ctg aat aaa gct aag ctt cct tta gga | 1901 |
| Ile Pro Gln Thr Gln Ala Leu Leu Asn Lys Ala Lys Leu Pro Leu Gly | |
| 570 575 580 | |
| ttg ttg tta cat ccc ttc aga gac cta acg caa tta cca gtg ata aca | 1949 |
| Leu Leu Leu His Pro Phe Arg Asp Leu Thr Gln Leu Pro Val Ile Thr | |
| 585 590 595 | |
| tca aat acc att gtg agg tgc cga tcc tgt cga acg tat att aac ccc | 1997 |
| Ser Asn Thr Ile Val Arg Cys Arg Ser Cys Arg Thr Tyr Ile Asn Pro | |
| 600 605 610 | |
| ttt gta tcc ttc att gat caa cgt aga tgg aaa tgc aat ttg tgc tat | 2045 |
| Phe Val Ser Phe Ile Asp Gln Arg Arg Trp Lys Cys Asn Leu Cys Tyr | |
| 615 620 625 630 | |
| aga gta aac gat gtt cct gaa gaa ttt atg tat aac ccc ctt acc cga | 2093 |
| Arg Val Asn Asp Val Pro Glu Glu Phe Met Tyr Asn Pro Leu Thr Arg | |
| 635 640 645 | |
| tct tat gga gag cct cat aaa cga cca gaa gtt cag aat tca act gtg | 2141 |
| Ser Tyr Gly Glu Pro His Lys Arg Pro Glu Val Gln Asn Ser Thr Val | |
| 650 655 660 | |
| gag ttc att gct tct tca gat tac atg ctg cgt cct cct caa cct gca | 2189 |
| Glu Phe Ile Ala Ser Ser Asp Tyr Met Leu Arg Pro Pro Gln Pro Ala | |
| 665 670 675 | |
| gtt tac ttg ttt gtt tta gat gtg tct cat aat gca gtg gaa gct gga | 2237 |
| Val Tyr Leu Phe Val Leu Asp Val Ser His Asn Ala Val Glu Ala Gly | |
| 680 685 690 | |
| tat ttg aca att ttg tgc cag tca ctc cta gaa aat cta gac aag ctt | 2285 |
| Tyr Leu Thr Ile Leu Cys Gln Ser Leu Leu Glu Asn Leu Asp Lys Leu | |
| 695 700 705 710 | |
| cct gga gat tca cga aca aga ata gga ttc atg acc ttt gat agc act | 2333 |
| Pro Gly Asp Ser Arg Thr Arg Ile Gly Phe Met Thr Phe Asp Ser Thr | |
| 715 720 725 | |
| att cat ttc tac aat tta caa gaa gga tta tca cag cct caa atg ttg | 2381 |
| Ile His Phe Tyr Asn Leu Gln Glu Gly Leu Ser Gln Pro Gln Met Leu | |
| 730 735 740 | |

| | |
|---|------|
| att gtg tct gat ata gat gat gtt ttt cta cct aca ccg gat agt tta | 2429 |
| Ile Val Ser Asp Ile Asp Asp Val Phe Leu Pro Thr Pro Asp Ser Leu | |
| 745 750 755 | |
| ctt gtg aat cta tat gaa agt aaa gag ctt ata aaa gac tta ctg aat | 2477 |
| Leu Val Asn Leu Tyr Glu Ser Lys Glu Leu Ile Lys Asp Leu Leu Asn | |
| 760 765 770 | |
| gca tta cca aac atg ttc acc aat aca aga gaa aca cac agt gcc ctt | 2525 |
| Ala Leu Pro Asn Met Phe Thr Asn Thr Arg Glu Thr His Ser Ala Leu | |
| 775 780 785 790 | |
| ggt cct gca ctt cag gct gcc ttt aaa tta atg tct cca aca ggt ggc | 2573 |
| Gly Pro Ala Leu Gln Ala Ala Phe Lys Leu Met Ser Pro Thr Gly Gly | |
| 795 800 805 | |
| cgt gtg tct gta ttt cag aca cag tta cct tcc ttg ggt gca gga ctt | 2621 |
| Arg Val Ser Val Phe Gln Thr Gln Leu Pro Ser Leu Gly Ala Gly Leu | |
| 810 815 820 | |
| ctg caa tcc aga gaa gat cct aat cag aga tca agt aca aag gtg gta | 2669 |
| Leu Gln Ser Arg Glu Asp Pro Asn Gln Arg Ser Ser Thr Lys Val Val | |
| 825 830 835 | |
| caa cat ctt ggc cct gca act gat ttt tat aag aaa ctt gca tta gat | 2717 |
| Gln His Leu Gly Pro Ala Thr Asp Phe Tyr Lys Lys Leu Ala Leu Asp | |
| 840 845 850 | |
| tgc tcg gga cag caa act gca gtg gat ttg ttc ctt tta agt tca cag | 2765 |
| Cys Ser Gly Gln Gln Thr Ala Val Asp Leu Phe Leu Leu Ser Ser Gln | |
| 855 860 865 870 | |
| tat tct gat ctt gct tct cta gct tgc atg tcc aag tat tct gca ggg | 2813 |
| Tyr Ser Asp Leu Ala Ser Leu Ala Cys Met Ser Lys Tyr Ser Ala Gly | |
| 875 880 885 | |
| tgc atc tat tat tat cca tca ttc cac tat act cac aat cct tca caa | 2861 |
| Cys Ile Tyr Tyr Tyr Pro Ser Phe His Tyr Thr His Asn Pro Ser Gln | |
| 890 895 900 | |
| gca gaa aag tta caa aaa gac cta aaa cgg tat ctc aca aga aaa att | 2909 |
| Ala Glu Lys Leu Gln Lys Asp Leu Lys Arg Tyr Leu Thr Arg Lys Ile | |
| 905 910 915 | |
| ggg ttt gaa gct gtt atg aga ata agg tgt act aaa ggt ctt tca atg | 2957 |
| Gly Phe Glu Ala Val Met Arg Ile Arg Cys Thr Lys Gly Leu Ser Met | |
| 920 925 930 | |
| cac act ttt cac ggt aac ttc ttt gtc cgt tct act gat ttg tta tcc | 3005 |
| His Thr Phe His Gly Asn Phe Phe Val Arg Ser Thr Asp Leu Leu Ser | |
| 935 940 945 950 | |
| ctt gcc aac atc aat cct gat gct gga ttt gcg gtg cag ttg tca att | 3053 |
| Leu Ala Asn Ile Asn Pro Asp Ala Gly Phe Ala Val Gln Leu Ser Ile | |
| 955 960 965 | |
| gaa gaa agt tta aca gat act tcc tta gta tgt ttt caa aca gcc cta | 3101 |
| Glu Glu Ser Leu Thr Asp Thr Ser Leu Val Cys Phe Gln Thr Ala Leu | |
| 970 975 980 | |
| tta tat aca tca agc aaa ggt gag cgg aga att aga gta cat aca ctt | 3149 |
| Leu Tyr Thr Ser Ser Lys Gly Glu Arg Arg Ile Arg Val His Thr Leu | |
| 985 990 995 | |

| | |
|---|------|
| tgt ttg cca gtg gta agt tca cta gca gat gta tat gcg gga gtg gat Cys Leu Pro Val Val Ser Ser Leu Ala Asp Val Tyr Ala Gly Val Asp 1000 1005 1010 | 3197 |
| gta caa gct gcc atc tgc ctt ctg gca aac atg gct gtg gat cgg tcc Val Gln Ala Ala Ile Cys Leu Leu Ala Asn Met Ala Val Asp Arg Ser 1015 1020 1025 1030 | 3245 |
| gtt tca tca agt ctg tca gat gca aga gat gcc tta gtg aat gct gta Val Ser Ser Ser Leu Ser Asp Ala Arg Asp Ala Leu Val Asn Ala Val 1035 1040 1045 | 3293 |
| gtg gac tca ttg tct gca tat ggc tca act gtc tca aat tta cag cac Val Asp Ser Leu Ser Ala Tyr Gly Ser Thr Val Ser Asn Leu Gln His 1050 1055 1060 | 3341 |
| tct gca ttg atg gcg ccc agc tcc ctc aag ttg ttt cct ctc tat gtt Ser Ala Leu Met Ala Pro Ser Ser Leu Lys Leu Phe Pro Leu Tyr Val 1065 1070 1075 | 3389 |
| ttg gcc ctt ctc aaa cag aaa gca ttt aga acg ggt aca agc aca cgg Leu Ala Leu Leu Lys Gln Lys Ala Phe Arg Thr Gly Thr Ser Thr Arg 1080 1085 1090 | 3437 |
| ctg gat gat cgt gta tat gcc atg tgt cag ata aag tct cag cca ctt Leu Asp Asp Arg Val Tyr Ala Met Cys Gln Ile Lys Ser Gln Pro Leu 1095 1100 1105 1110 | 3485 |
| gtt cat cta atg aaa atg att cat ccc aac tta tac agg ata gac aga Val His Leu Met Lys Met Ile His Pro Asn Leu Tyr Arg Ile Asp Arg 1115 1120 1125 | 3533 |
| ttg aca gat gag ggt gca gta cat gtt aat gac agg att gta cca cag Leu Thr Asp Glu Gly Ala Val His Val Asn Asp Arg Ile Val Pro Gln 1130 1135 1140 | 3581 |
| cca cct ctt caa aaa ttg tct gca gag aag ctg aca aga gaa ggt gct Pro Pro Leu Gln Lys Leu Ser Ala Glu Lys Leu Thr Arg Glu Gly Ala 1145 1150 1155 | 3629 |
| ttc ctt atg gac tgt ggc tct gtt ttt tac att tgg gtt ggg aaa ggc Phe Leu Met Asp Cys Gly Ser Val Phe Tyr Ile Trp Val Gly Lys Gly 1160 1165 1170 | 3677 |
| tgt gac aat aac ttc ata gag gat gtg ctt gga tat act aat ttt gca Cys Asp Asn Asn Phe Ile Glu Asp Val Leu Gly Tyr Thr Asn Phe Ala 1175 1180 1185 1190 | 3725 |
| tca ata cca cag aaa atg aca cat ctt cca gag cta gat aca ctt tca Ser Ile Pro Gln Lys Met Thr His Leu Pro Glu Leu Asp Thr Leu Ser 1195 1200 1205 | 3773 |
| tca gaa aga gcc aga tcc ttc ata act tgg ctt aga gac agc aga cca Ser Glu Arg Ala Arg Ser Phe Ile Thr Trp Leu Arg Asp Ser Arg Pro 1210 1215 1220 | 3821 |
| tta agt cca atc ctt cac ata gta aaa gat gag agt cct gcc aaa gca Leu Ser Pro Ile Leu His Ile Val Lys Asp Glu Ser Pro Ala Lys Ala 1225 1230 1235 | 3869 |
| gaa ttt ttt cag cat ttg att gaa gac cgg aca gag gct gca ttt tct Glu Phe Phe Gln His Leu Ile Glu Asp Arg Thr Glu Ala Ala Phe Ser 1240 1245 1250 | 3917 |

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 Tyr Tyr Glu Phe Leu Leu His Val Gln Gln Gln Ile Cys Lys *
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 Met Glu Thr Gly Gln Arg Thr His Ala Ser Gly
 1 5 10
 act tac agc ttc ctt gat cgg act cag cat tca gat atc aaa gca gac 459
 Thr Tyr Ser Phe Leu Asp Arg Thr Gln His Ser Asp Ile Lys Ala Asp
 15 20 25

| | |
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| tgc aat acc tgc gtg gaa ata gaa gac aga aag gtt tca aga caa cag Cys Asn Thr Cys Val Glu Ile Glu Asp Arg Lys Val Ser Arg Gln Gln 30 35 40 | 507 |
| atg aat tgt gaa aga gag cag cta agg ggt aat cag gaa gca gcc gct Met Asn Cys Glu Arg Glu Gln Leu Arg Gly Asn Gln Glu Ala Ala Ala 45 50 55 | 555 |
| gcc cct gac aca atg gct cag cct tac gct tcg gcc cag ttt gct ccc Ala Pro Asp Thr Met Ala Gln Pro Tyr Ala Ser Ala Gln Phe Ala Pro 60 65 70 75 | 603 |
| ccg cag aac ggt atc ccc gcg gaa tac acg gcc cct cat ccc cac ccc Pro Gln Asn Gly Ile Pro Ala Glu Tyr Thr Ala Pro His Pro His Pro 80 85 90 | 651 |
| gcg cca gag tac aca ggc cag acc acg gtt ccc gag cac aca tta aac Ala Pro Glu Tyr Thr Gly Gln Thr Thr Val Pro Glu His Thr Leu Asn 95 100 105 | 699 |
| ctg tac cct ccc gcc cag acg cac tcc gag cag agc ccg gcg gac acg Leu Tyr Pro Pro Ala Gln Thr His Ser Glu Gln Ser Pro Ala Asp Thr 110 115 120 | 747 |
| agc gct cag acc gtc tct ggc acc gcc aca cag aca gat gac gca gca Ser Ala Gln Thr Val Ser Gly Thr Ala Thr Gln Thr Asp Asp Ala Ala 125 130 135 | 795 |
| ccg acg gat ggc cag ccc cag aca caa cct tct gaa aac acg gaa aac Pro Thr Asp Gly Gln Pro Gln Thr Gln Pro Ser Glu Asn Thr Glu Asn 140 145 150 155 | 843 |
| aag tct cag ccc aag cgg ctg cat gtc tcc aat atc ccc ttc agg ttc Lys Ser Gln Pro Lys Arg Leu His Val Ser Asn Ile Pro Phe Arg Phe 160 165 170 | 891 |
| cgg gat ccg gac ctc aga caa atg ttt ggt caa ttt ggt aaa atc tta Arg Asp Pro Asp Leu Arg Gln Met Phe Gly Gln Phe Gly Lys Ile Leu 175 180 185 | 939 |
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| gta act ttc gaa aat agt gcc gat gcg gac agg gcg agg gag aaa tta Val Thr Phe Glu Asn Ser Ala Asp Ala Asp Arg Ala Arg Glu Lys Leu 205 210 215 | 1035 |
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| gca cgt gta atg aca aat aaa aag acc gtc aac cct tat aca aat ggc Ala Arg Val Met Thr Asn Lys Lys Thr Val Asn Pro Tyr Thr Asn Gly 240 245 250 | 1131 |
| tgg aaa ttg aat cca gtt gtg ggt gca gtc tac agt ccc gaa ttc tat Trp Lys Leu Asn Pro Val Val Gly Ala Val Tyr Ser Pro Glu Phe Tyr 255 260 265 | 1179 |
| gca ggc acg gtc ctg ttg tgc cag gcc aac cag gag gga tct tcc atg Ala Gly Thr Val Leu Leu Cys Gln Ala Asn Gln Glu Gly Ser Ser Met 270 275 280 | 1227 |

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 Pro Thr Pro Ala Thr Ala Ala Tyr Ser Asp Ser Tyr Gly Arg Val
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 Tyr Ala Ala Asp Pro Tyr His His Ala Leu Ala Pro Ala Pro Thr Tyr
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 Gly Val Gly Ala Met Asn Ala Phe Ala Pro Leu Thr Asp Ala Lys Thr
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 Arg Ser His Ala Asp Asp Val Gly Leu Val Leu Ser Ser Leu Gln Ala
 415 420 425

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 Ser Ile Tyr Arg Gly Gly Tyr Asn Arg Phe Ala Pro Tyr *
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 Met Glu Glu Val Met Gln Lys Asp Gln Lys Lys Val Pro Gln Lys Lys

| 10 | 15 | 20 | 25 | |
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| Val Pro Tyr Ala Lys Pro Ile Pro Ala Gln Phe Gln Gln Ala Trp Met | | | | |
| | 30 | 35 | 40 | |
| caa aat aaa gtt cca att cct gct cca aat gag gtg ctg aat gac aga | | | | 197 |
| Gln Asn Lys Val Pro Ile Pro Ala Pro Asn Glu Val Leu Asn Asp Arg | | | | |
| | 45 | 50 | 55 | |
| aaa gaa gac att aaa ttg gaa gag aag aaa aaa aca caa gca gaa att | | | | 245 |
| Lys Glu Asp Ile Lys Leu Glu Glu Lys Lys Lys Thr Gln Ala Glu Ile | | | | |
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| gag caa gaa atg gct aca tta caa tat act aac cca caa ctt ctg gag | | | | 293 |
| Glu Gln Glu Met Ala Thr Leu Gln Tyr Thr Asn Pro Gln Leu Leu Glu | | | | |
| | 75 | 80 | 85 | |
| caa ctt aaa att gaa aga ctt gca cag aaa caa gtt gag caa att cag | | | | 341 |
| Gln Leu Lys Ile Glu Arg Leu Ala Gln Lys Gln Val Glu Gln Ile Gln | | | | |
| | 90 | 95 | 100 | 105 |
| cct cct ccc tca tct ggc acc cct ctc ctc gga ccc cag cct ttt cca | | | | 389 |
| Pro Pro Pro Ser Ser Gly Thr Pro Leu Leu Gly Pro Gln Pro Phe Pro | | | | |
| | 110 | 115 | 120 | |
| gga caa ggt cca atg tct cag att cct caa ggt ttt caa cag ccc cat | | | | 437 |
| Gly Gln Gly Pro Met Ser Gln Ile Pro Gln Gly Phe Gln Gln Pro His | | | | |
| | 125 | 130 | 135 | |
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| Pro Ser Gln Gln Met Pro Met Asn Met Ala Gln Met Gly Pro Pro Gly | | | | |
| | 140 | 145 | 150 | |
| cca cag gga cag ttt agg cct cct gga ccc cag gga caa atg gga cca | | | | 533 |
| Pro Gln Gly Gln Phe Arg Pro Pro Gly Pro Gln Gly Gln Met Gly Pro | | | | |
| | 155 | 160 | 165 | |
| caa ggt cct cca ctg cat cag gga ggt ggg ggg cca caa gga ttc atg | | | | 581 |
| Gln Gly Pro Pro Leu His Gln Gly Gly Gly Gly Pro Gln Gly Phe Met | | | | |
| | 170 | 175 | 180 | 185 |
| gga cca cag ggg ccc cag ggc ccg ccc cag ggg ttg cca cgg cct cag | | | | 629 |
| Gly Pro Gln Gly Pro Gln Gly Pro Pro Gln Gly Leu Pro Arg Pro Gln | | | | |
| | 190 | 195 | 200 | |
| gac atg cat ggg ccc caa gga atg cag agg cat cct gga cct cat ggc | | | | 677 |
| Asp Met His Gly Pro Gln Gly Met Gln Arg His Pro Gly Pro His Gly | | | | |
| | 205 | 210 | 215 | |
| cct ttg gga cct caa ggg cca cct gga cca caa ggt agt tct ggt cct | | | | 725 |
| Pro Leu Gly Pro Gln Gly Pro Pro Gly Pro Gln Gly Ser Ser Gly Pro | | | | |
| | 220 | 225 | 230 | |
| caa ggt cat atg ggt cct cag ggt cca cct ggc cca cag ggt cac ata | | | | 773 |
| Gln Gly His Met Gly Pro Gln Gly Pro Pro Gly Pro Gln Gly His Ile | | | | |
| | 235 | 240 | 245 | |
| ggc ccc caa ggc ccg cct ggc cct cag ggt cac ttg ggc cca cag ggg | | | | 821 |
| Gly Pro Gln Gly Pro Pro Gly Pro Gln Gly His Leu Gly Pro Gln Gly | | | | |
| | 250 | 255 | 260 | 265 |
| cct ccg ggt act caa ggt atg cag gga cca cct ggt ccc aga gga atg | | | | 869 |
| Pro Pro Gly Thr Gln Gly Met Gln Gly Pro Pro Gly Pro Arg Gly Met | | | | |

| 270 | | | | | | | | | | 275 | | | | | | | | | | 280 | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|
| caa | ggg | cct | cct | cat | cct | cat | ggg | atc | caa | ggc | gga | cca | ggg | tct | caa | | | | | | | | | | | | | | |
| Gln | Gly | Pro | Pro | His | Pro | His | Gly | Ile | Gln | Gly | Gly | Pro | Gly | Ser | Gln | | | | | | | | | | | | | | |
| | | | 285 | | | | | 290 | | | | | | 295 | | | | | | | | | | | | | | | |
| ggg | atc | caa | ggt | cct | gtg | tct | cag | gga | cct | ctg | atg | gga | ttg | aat | cca | | | | | | | | | | | | | | |
| Gly | Ile | Gln | Gly | Pro | Val | Ser | Gln | Gly | Pro | Leu | Met | Gly | Leu | Asn | Pro | | | | | | | | | | | | | | |
| | | 300 | | | | | 305 | | | | | 310 | | | | | | | | | | | | | | | | | |
| aga | gga | atg | cag | ggg | cct | cca | ggc | ccc | cgg | gag | aac | cag | ggt | cct | gct | | | | | | | | | | | | | | |
| Arg | Gly | Met | Gln | Gly | Pro | Pro | Gly | Pro | Arg | Glu | Asn | Gln | Gly | Pro | Ala | | | | | | | | | | | | | | |
| | 315 | | | | | 320 | | | | | 325 | | | | | | | | | | | | | | | | | | |
| ccc | caa | ggg | atg | att | atg | ggc | cac | ccg | cct | caa | gag | atg | aga | gga | cct | | | | | | | | | | | | | | |
| Pro | Gln | Gly | Met | Ile | Met | Gly | His | Pro | Pro | Gln | Glu | Met | Arg | Gly | Pro | | | | | | | | | | | | | | |
| 330 | | | | | 335 | | | | | 340 | | | | | 345 | | | | | | | | | | | | | | |
| cac | cct | cca | ggt | gga | cta | ctg | gga | cac | ggc | cct | cag | gaa | atg | aga | ggt | | | | | | | | | | | | | | |
| His | Pro | Pro | Gly | Gly | Leu | Leu | Gly | His | Gly | Pro | Gln | Glu | Met | Arg | Gly | | | | | | | | | | | | | | |
| | | | 350 | | | | 355 | | | | | | 360 | | | | | | | | | | | | | | | | |
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| Pro | Gln | Glu | Ile | Arg | Gly | Met | Gln | Gly | Pro | Pro | Pro | Gln | Gly | Ser | Met | | | | | | | | | | | | | | |
| | | | 365 | | | | 370 | | | | | 375 | | | | | | | | | | | | | | | | | |
| ctg | gga | cct | ccc | cag | gaa | ttg | cga | ggg | cct | cca | ggc | tca | caa | agt | cag | | | | | | | | | | | | | | |
| Leu | Gly | Pro | Pro | Gln | Glu | Leu | Arg | Gly | Pro | Pro | Gly | Ser | Gln | Ser | Gln | | | | | | | | | | | | | | |
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| Gln | Gly | Pro | Pro | Gln | Gly | Ser | Leu | Gly | Pro | Pro | Pro | Gln | Gly | Gly | Met | | | | | | | | | | | | | | |
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| caa | gga | ccc | ccc | gga | cct | cag | gga | cag | cag | aac | cca | gca | aga | ggg | cca | | | | | | | | | | | | | | |
| Gln | Gly | Pro | Pro | Gly | Pro | Gln | Gly | Gln | Gln | Asn | Pro | Ala | Arg | Gly | Pro | | | | | | | | | | | | | | |
| 410 | | | | | 415 | | | | | 420 | | | | 425 | | | | | | | | | | | | | | | |
| cat | cca | tct | caa | ggg | cca | ata | cca | ttc | cag | caa | cag | aaa | acg | cct | ctg | | | | | | | | | | | | | | |
| His | Pro | Ser | Gln | Gly | Pro | Ile | Pro | Phe | Gln | Gln | Gln | Lys | Thr | Pro | Leu | | | | | | | | | | | | | | |
| | | | 430 | | | | 435 | | | | | 440 | | | | | | | | | | | | | | | | | |
| cta | ggt | gat | ggg | ccc | cgg | gcc | ccc | ttc | aac | cag | gaa | gga | cag | agc | aca | | | | | | | | | | | | | | |
| Leu | Gly | Asp | Gly | Pro | Arg | Ala | Pro | Phe | Asn | Gln | Glu | Gly | Gln | Ser | Thr | | | | | | | | | | | | | | |
| | | | 445 | | | | 450 | | | | | 455 | | | | | | | | | | | | | | | | | |
| ggc | ccc | cca | ccc | ctg | ata | cca | ggc | cta | ggg | cag | cag | gga | gca | caa | ggt | | | | | | | | | | | | | | |
| Gly | Pro | Pro | Pro | Leu | Ile | Pro | Gly | Leu | Gly | Gln | Gln | Gly | Ala | Gln | Gly | | | | | | | | | | | | | | |
| | | 460 | | | | | 465 | | | | | 470 | | | | | | | | | | | | | | | | | |
| cgc | att | ccc | cct | ctg | aac | ccc | gga | caa | gga | cct | ggc | ccc | aac | aaa | gtt | | | | | | | | | | | | | | |
| Arg | Ile | Pro | Pro | Leu | Asn | Pro | Gly | Gln | Gly | Pro | Gly | Pro | Asn | Lys | Val | | | | | | | | | | | | | | |
| | 475 | | | | | 480 | | | | | | 485 | | | | | | | | | | | | | | | | | |
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| Ser | Glu | Glu | Glu | Pro | Arg | Arg | Gly | Met | Arg | Ala | Val | Leu | Pro | Pro | Glu | | | | | | | | | | | | | | |
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| Glu | Gly | Met | Val | Phe | Leu | Val | Leu | Lys | Thr | Leu | Val | Gln | Arg | Arg | Ile | | | | | | | | | | | | | | |
| | | | 510 | | | | 515 | | | | | 520 | | | | | | | | | | | | | | | | | |
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| Leu | Met | Leu | Met | Arg | Glu | Ala | Ala | Arg | Gly | Arg | Asp | Leu | Arg | Gly | Arg | | | | | | | | | | | | | | |

| 525 | 530 | 535 | |
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| gga aac aga gag cct ggg cca ggt cat gaa cat ttt cgt gat act ccc Gly Asn Arg Glu Pro Gly Pro Gly His Glu His Phe Arg Asp Thr Pro 570 575 580 585 | | | 1781 |
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| cgc tcc tct tct ctc caa ggc atg gac atg gca tcc cta cct ccc cga Arg Ser Ser Ser Leu Gln Gly Met Asp Met Ala Ser Leu Pro Pro Arg 605 610 615 | | | 1877 |
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| gag gcc cca gga ggc cct tct gaa gac cga gga ggc aaa ggc cga ggg Glu Ala Pro Gly Gly Pro Ser Glu Asp Arg Gly Gly Lys Gly Arg Gly 635 640 645 | | | 1973 |
| ggc cca gga cct gct cag aga gtg ccc aaa tct ggg cgt tcc agc tcc Gly Pro Gly Pro Ala Gln Arg Val Pro Lys Ser Gly Arg Ser Ser Ser 650 655 660 665 | | | 2021 |
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| ggc cct cca ggc agt ggc acc cct tct cga ggg ggc cgg agt ggc agt Gly Pro Pro Gly Ser Gly Thr Pro Ser Arg Gly Gly Arg Ser Gly Ser 685 690 695 | | | 2117 |
| aac tgg ggt aga ggg agt aac atg aac tct ggc ccg ccg agg cga gga Asn Trp Gly Arg Gly Ser Asn Met Asn Ser Gly Pro Pro Arg Arg Gly 700 705 710 | | | 2165 |
| gct ttc ctg ggt ggt ggg agg ggt ccg gta aaa cct cga act gag ttc Ala Phe Leu Gly Gly Gly Arg Gly Pro Val Lys Pro Arg Thr Glu Phe 715 720 725 | | | 2213 |
| cct gag ggc gtt ttt gga cag att gta aga act ttt ggt gga ctt cac Pro Glu Gly Val Phe Gly Gln Ile Val Arg Thr Phe Gly Gly Leu His 730 735 740 745 | | | 2261 |
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| agtcccagga | tttccgaagc | gagccgaagc | atcgcgacag | ttttcagaga | cagctgatcg | 360 |
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| | | | Met Ala Ala Ala Arg Ala Thr Thr Pro | | | |
| | | | 1 | 5 | | |
| gcc gat ggc gag gag ccc gcc ccg gag gct gag gct ctg gcc gca gcc | | | | | | 460 |
| Ala Asp Gly Glu Glu Pro Ala Pro Glu Ala Glu Ala Leu Ala Ala Ala | | | | | | |
| 10 | | | 15 | | 20 | 25 |
| cgg gag cgg agc agc cgc ttc ttg agc ggc ctg gag ctg gtg aag cag | | | | | | 508 |
| Arg Glu Arg Ser Ser Arg Phe Leu Ser Gly Leu Glu Leu Val Lys Gln | | | | | | |
| | | | 30 | | 35 | 40 |
| ggc gcc gag gcg cgc gtg ttc cgt ggc cgc ttc cag ggc cgc gcg gcg | | | | | | 556 |
| Gly Ala Glu Ala Arg Val Phe Arg Gly Arg Phe Gln Gly Arg Ala Ala | | | | | | |
| | | | 45 | | 50 | 55 |
| gtg atc aag cac cgc ttc ccc aag ggc tac cgg cac ccg gcg ctg gag | | | | | | 604 |
| Val Ile Lys His Arg Phe Pro Lys Gly Tyr Arg His Pro Ala Leu Glu | | | | | | |
| | | | 60 | | 65 | 70 |
| gcg cgg ctt ggc aga cgg cgg acg gtg cag gag gcc cgg gcg ctc ctc | | | | | | 652 |
| Ala Arg Leu Gly Arg Arg Arg Thr Val Gln Glu Ala Arg Ala Leu Leu | | | | | | |
| | | | 75 | | 80 | 85 |
| cgc tgt cgc cgc gct gga ata tct gcc cca gtt gtc ttt ttt gtg gac | | | | | | 700 |
| Arg Cys Arg Arg Ala Gly Ile Ser Ala Pro Val Val Phe Phe Val Asp | | | | | | |
| | | | 90 | | 95 | 100 |
| tat gct tcc aac tgc tta tat atg gaa gaa att gaa ggc tca gtg act | | | | | | 748 |
| Tyr Ala Ser Asn Cys Leu Tyr Met Glu Glu Ile Glu Gly Ser Val Thr | | | | | | |
| | | | 110 | | 115 | 120 |
| gtt cga gat tat att cag tcc act atg gag act gaa aaa act ccc cag | | | | | | 796 |
| Val Arg Asp Tyr Ile Gln Ser Thr Met Glu Thr Glu Lys Thr Pro Gln | | | | | | |
| | | | 125 | | 130 | 135 |
| ggc ctc tcc aac tta gcc aag aca att ggg cag gtt ttg gct cga atg | | | | | | 844 |
| Gly Leu Ser Asn Leu Ala Lys Thr Ile Gly Gln Val Leu Ala Arg Met | | | | | | |
| | | | 140 | | 145 | 150 |
| cac gat gaa gac ctc att cat ggt gat ctc acc acc tcc aac atg ctc | | | | | | 892 |
| His Asp Glu Asp Leu Ile His Gly Asp Leu Thr Thr Ser Asn Met Leu | | | | | | |
| | | | 155 | | 160 | 165 |

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ctg aaa ccc ccc ctg gaa cag ctg aac att gtg ctc ata gac ttt ggg      940
Leu Lys Pro Pro Leu Glu Gln Leu Asn Ile Val Leu Ile Asp Phe Gly
170                      175                      180                      185

ctg agt ttc att tca gca ctt cca gag gat aag gga gta gac ctc tat      988
Leu Ser Phe Ile Ser Ala Leu Pro Glu Asp Lys Gly Val Asp Leu Tyr
                      190                      195                      200

gtc ctg gag aag gcc ttc ctc agt acc cat ccc aac act gaa act gtg      1036
Val Leu Glu Lys Ala Phe Leu Ser Thr His Pro Asn Thr Glu Thr Val
                      205                      210                      215

ttt gaa gcc ttt ctg aag agc tac tcc acc tcc tcc aaa aag gcc agg      1084
Phe Glu Ala Phe Leu Lys Ser Tyr Ser Thr Ser Ser Lys Lys Ala Arg
                      220                      225                      230

cca gtg cta aaa aaa tta gat gaa gtg cgc ctg aga gga aga aag agg      1132
Pro Val Leu Lys Lys Leu Asp Glu Val Arg Leu Arg Gly Arg Lys Arg
                      235                      240                      245

tcc atg gtt ggg tag aagaatgtgt atgacaacca cacacagtga agctcttttt      1187
Ser Met Val Gly *
250

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atattttttaa aaaaaaaaaa                                           1267

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ggtcaaagac tgggtgcctg ggagctgagg cagccaccgt ttcagcctgg ccagccctct      180

ggaccccgag gttggaccct actgtgacac acctacc atg cgg aca ctc ttc aac      235
                               Met Arg Thr Leu Phe Asn
                               1                      5

ctc ctc tgg ctt gcc ctg gcc tgc agc cct gtt cac act acc ctg tca      283
Leu Leu Trp Leu Ala Leu Ala Cys Ser Pro Val His Thr Thr Leu Ser
                      10                      15                      20

aag tca gat gcc aaa aaa gcc gcc tca aag acg ctg ctg gag aag agt      331
Lys Ser Asp Ala Lys Lys Ala Ala Ser Lys Thr Leu Leu Glu Lys Ser
                      25                      30                      35

cag ttt tca gat aag ccg gtg caa gac cgg ggt ttg gtg gtg acg gac      379
Gln Phe Ser Asp Lys Pro Val Gln Asp Arg Gly Leu Val Val Thr Asp
                      40                      45                      50

ctc aaa gct gag agt gtg gtt ctt gag cat cgc agc tac tgc tcg gca      427

```

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Leu | Lys | Ala | Glu | Ser | Val | Val | Leu | Glu | His | Arg | Ser | Tyr | Cys | Ser | Ala | | |
| 55 | | | | | 60 | | | | | 65 | | | | | 70 | | |
| aag | gcc | cgg | gac | aga | cac | ttt | gct | ggg | gat | gta | ctg | ggc | tat | gtc | act | 475 | |
| Lys | Ala | Arg | Asp | Arg | His | Phe | Ala | Gly | Asp | Val | Leu | Gly | Tyr | Val | Thr | | |
| | | | | 75 | | | | | 80 | | | | | 85 | | | |
| cca | tgg | aac | agc | cat | ggc | tac | tat | gtc | acc | aag | gtc | ttt | ggg | agc | aag | 523 | |
| Pro | Trp | Asn | Ser | His | Gly | Tyr | Tyr | Val | Thr | Lys | Val | Phe | Gly | Ser | Lys | | |
| | | | 90 | | | | | 95 | | | | | 100 | | | | |
| ttc | aca | cag | atc | tca | ccc | gtc | tgg | ctg | cag | ctg | aag | aga | cgt | ggc | cgt | 571 | |
| Phe | Thr | Gln | Ile | Ser | Pro | Val | Trp | Leu | Gln | Leu | Lys | Arg | Arg | Gly | Arg | | |
| | | 105 | | | | | 110 | | | | | 115 | | | | | |
| gag | atg | ttt | gag | gtc | acg | ggc | ctc | cac | gac | gtg | gac | caa | ggg | tgg | atg | 619 | |
| Glu | Met | Phe | Glu | Val | Thr | Gly | Leu | His | Asp | Val | Asp | Gln | Gly | Trp | Met | | |
| | 120 | | | | | 125 | | | | | 130 | | | | | | |
| cga | gct | gtc | agg | aag | cat | gcc | aag | ggc | ctg | cac | ata | gtg | cct | cgg | ctc | 667 | |
| Arg | Ala | Val | Arg | Lys | His | Ala | Lys | Gly | Leu | His | Ile | Val | Pro | Arg | Leu | | |
| 135 | | | | | 140 | | | | | 145 | | | | | 150 | | |
| ctg | ttt | gag | gac | tgg | act | tac | gat | gat | ttc | cgg | aac | gtc | tta | tac | agt | 715 | |
| Leu | Phe | Glu | Asp | Trp | Thr | Tyr | Asp | Asp | Phe | Arg | Asn | Val | Leu | Tyr | Ser | | |
| | | | | 155 | | | | | 160 | | | | | 165 | | | |
| gag | gat | gag | ata | gag | gag | ctg | agc | aag | acc | gtg | gtc | cag | gtg | gca | aag | 763 | |
| Glu | Asp | Glu | Ile | Glu | Glu | Leu | Ser | Lys | Thr | Val | Val | Gln | Val | Ala | Lys | | |
| | | | 170 | | | | | 175 | | | | | 180 | | | | |
| aac | cag | cat | ttc | gat | ggc | ttc | gtg | gtg | gag | gtc | tgg | aac | cag | ctg | cta | 811 | |
| Asn | Gln | His | Phe | Asp | Gly | Phe | Val | Val | Glu | Val | Trp | Asn | Gln | Leu | Leu | | |
| | | 185 | | | | | 190 | | | | | 195 | | | | | |
| agc | cag | aag | cgc | gtg | ggc | ctc | atc | cac | atg | ctc | acc | cac | ttg | gcc | gag | 859 | |
| Ser | Gln | Lys | Arg | Val | Gly | Leu | Ile | His | Met | Leu | Thr | His | Leu | Ala | Glu | | |
| | 200 | | | | | 205 | | | | | 210 | | | | | | |
| gct | ctg | cac | cag | gcc | cgg | ctg | ctg | gcc | ctc | ctg | gtc | atc | ccg | cct | gcc | 907 | |
| Ala | Leu | His | Gln | Ala | Arg | Leu | Leu | Ala | Leu | Leu | Val | Ile | Pro | Pro | Ala | | |
| 215 | | | | | 220 | | | | | 225 | | | | | 230 | | |
| atc | acc | ccc | ggg | acc | gac | cag | ctg | ggc | atg | ttc | acg | cac | aag | gag | ttt | 955 | |
| Ile | Thr | Pro | Gly | Thr | Asp | Gln | Leu | Gly | Met | Phe | Thr | His | Lys | Glu | Phe | | |
| | | | | 235 | | | | | 240 | | | | | 245 | | | |
| gag | cag | ctg | gcc | ccc | gtg | ctg | gat | ggc | ttc | agc | ctc | atg | acc | tac | gac | 1003 | |
| Glu | Gln | Leu | Ala | Pro | Val | Leu | Asp | Gly | Phe | Ser | Leu | Met | Thr | Tyr | Asp | | |
| | | | 250 | | | | | 255 | | | | | 260 | | | | |
| tac | tct | aca | gcg | cat | cag | cct | ggc | cct | aat | gca | ccc | ctg | tcc | tgg | gtt | 1051 | |
| Tyr | Ser | Thr | Ala | His | Gln | Pro | Gly | Pro | Asn | Ala | Pro | Leu | Ser | Trp | Val | | |
| | | 265 | | | | | 270 | | | | | 275 | | | | | |
| cga | gcc | tgc | gtc | cag | gtc | ctg | gac | ccg | aag | tcc | aag | tgg | cga | agc | aaa | 1099 | |
| Arg | Ala | Cys | Val | Gln | Val | Leu | Asp | Pro | Lys | Ser | Lys | Trp | Arg | Ser | Lys | | |
| | 280 | | | | | 285 | | | | | 290 | | | | | | |
| atc | ctc | ctg | ggg | ctc | aac | ttc | tat | ggc | atg | gac | tac | gcg | acc | tcc | aag | 1147 | |
| Ile | Leu | Leu | Gly | Leu | Asn | Phe | Tyr | Gly | Met | Asp | Tyr | Ala | Thr | Ser | Lys | | |
| 295 | | | | | 300 | | | | | 305 | | | | | 310 | | |
| gat | gcc | cgt | gag | cct | gtt | gtc | ggg | gcc | agg | tac | atc | cag | aca | ctg | aag | 1195 | |

Asp Ala Arg Glu Pro Val Val Gly Ala Arg Tyr Ile Gln Thr Leu Lys
 315 320 325
 gac cac agg ccc cgg atg gtg tgg gac agc cag gcc tca gag cac ttc 1243
 Asp His Arg Pro Arg Met Val Trp Asp Ser Gln Ala Ser Glu His Phe
 330 335 340
 ttc gag tac aag aag agc cgc agt ggg agg cac gtc gtc ttc tac cca 1291
 Phe Glu Tyr Lys Lys Ser Arg Ser Gly Arg His Val Val Phe Tyr Pro
 345 350 355
 acc ctg aag tcc ctg cag gtg cgg ctg gag ctg gcc cgg gag ctg ggc 1339
 Thr Leu Lys Ser Leu Gln Val Arg Leu Glu Leu Ala Arg Glu Leu Gly
 360 365 370
 gtt ggg gtc tct atc tgg gag ctg ggc cag ggc ctg gac tac ttc tac 1387
 Val Gly Val Ser Ile Trp Glu Leu Gly Gln Gly Leu Asp Tyr Phe Tyr
 375 380 385 390
 gac ctg ctc tag gtg ggcattgcgg cctccgcggg ggacgtgttc ttttctaagc 1442
 Asp Leu Leu *
 catggagtga gtgagcagggt gtgaaataca ggcctccact ccgtttgctg tgaaaaaaaa 1502
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 gggcttcatg ccggatgtga tagtctgcag tcgtttcggg tggcagcctg gcgggtggga 180
 gatgcggcgg ccacctgctg caaagaaccg aagggaaggt tagaagtacg aaggcagttt 240
 ggagctgggg ctaagcagct gtcgcacggg cagatc atg ggc tcc acc aag cac 294
 Met Gly Ser Thr Lys His
 1 5
 tgg ggc gaa tgg ctc ctg aac ttg aag gtg gct cca gcc ggc gtc ttt 342
 Trp Gly Glu Trp Leu Leu Asn Leu Lys Val Ala Pro Ala Gly Val Phe
 10 15 20
 ggt gtg gcc ttt cta gcc aga gtc gcc ctg gtt ttc tat ggc gtc ttc 390
 Gly Val Ala Phe Leu Ala Arg Val Ala Leu Val Phe Tyr Gly Val Phe
 25 30 35
 cag gac cgg acc ctg cac gtg agg tat acg gac atc gac tac cag gtc 438
 Gln Asp Arg Thr Leu His Val Arg Tyr Thr Asp Ile Asp Tyr Gln Val
 40 45 50

| | |
|---|------|
| ttc acc gac gcc gcg cgc ttc gtc acg gag ggg cgc tcg cct tac ctg | 486 |
| Phe Thr Asp Ala Ala Arg Phe Val Thr Glu Gly Arg Ser Pro Tyr Leu | |
| 55 60 65 70 | |
| aga gcc acg tac cgt tac acc ccg ctg ctg ggt tgg ctc ctc act ccc | 534 |
| Arg Ala Thr Tyr Arg Tyr Thr Pro Leu Leu Gly Trp Leu Leu Thr Pro | |
| 75 80 85 | |
| aac atc tac ctc agc gag ctc ttt gga aag ttt ctc ttc atc agc tgc | 582 |
| Asn Ile Tyr Leu Ser Glu Leu Phe Gly Lys Phe Leu Phe Ile Ser Cys | |
| 90 95 100 | |
| gac ctc ctc acc gct ttc ctc tta tac cgc ctg ctg ctg ctg aag ggg | 630 |
| Asp Leu Leu Thr Ala Phe Leu Leu Tyr Arg Leu Leu Leu Leu Lys Gly | |
| 105 110 115 | |
| ctg ggg cgc cgc cag gct tgt ggc tac tgt gtc ttt tgg ctt ctt aac | 678 |
| Leu Gly Arg Arg Gln Ala Cys Gly Tyr Cys Val Phe Trp Leu Leu Asn | |
| 120 125 130 | |
| ccc ctg cct atg gca gta tcc agc cgc ggt aat gcg gac tct att gtc | 726 |
| Pro Leu Pro Met Ala Val Ser Ser Arg Gly Asn Ala Asp Ser Ile Val | |
| 135 140 145 150 | |
| gcc tcc ctg gtc ctg atg gtc ctc tac ttg ata aag aaa aga ctc gtc | 774 |
| Ala Ser Leu Val Leu Met Val Leu Tyr Leu Ile Lys Lys Arg Leu Val | |
| 155 160 165 | |
| gcg tgt gca gct gta ttc tat ggt ttc gcg gtg cat atg aag ata tat | 822 |
| Ala Cys Ala Ala Val Phe Tyr Gly Phe Ala Val His Met Lys Ile Tyr | |
| 170 175 180 | |
| cca gag act tac atc ctt ccc ata acc ctc cac ctg ctt cca gat cgc | 870 |
| Pro Glu Thr Tyr Ile Leu Pro Ile Thr Leu His Leu Leu Pro Asp Arg | |
| 185 190 195 | |
| gac aat gac aaa agc ctc cgt caa ttc cgg aca agg ctg tgt aat cgg | 918 |
| Asp Asn Asp Lys Ser Leu Arg Gln Phe Arg Thr Arg Leu Cys Asn Arg | |
| 200 205 210 | |
| act gcg ctg atg ttt gta gca gtt gct gga ctc acg ttt ttt gcc ctg | 966 |
| Thr Ala Leu Met Phe Val Ala Val Ala Gly Leu Thr Phe Phe Ala Leu | |
| 215 220 225 230 | |
| agc ttt ggt ttt tac tat gag tac ggc tgg gaa ttt ttg gaa cac acc | 1014 |
| Ser Phe Gly Phe Tyr Tyr Glu Tyr Gly Trp Glu Phe Leu Glu His Thr | |
| 235 240 245 | |
| tac ttt tat cac ctg act agg cgg gat atc cgt cac aac ttt tct ccg | 1062 |
| Tyr Phe Tyr His Leu Thr Arg Arg Asp Ile Arg His Asn Phe Ser Pro | |
| 250 255 260 | |
| tac ttc tac atg ctg tat ttg act gca gag agc aag tgg agt ttt tcc | 1110 |
| Tyr Phe Tyr Met Leu Tyr Leu Thr Ala Glu Ser Lys Trp Ser Phe Ser | |
| 265 270 275 | |
| ctg gga att gct gca ttc ctg cca cag ctc atc ttg ctt tca gct gtg | 1158 |
| Leu Gly Ile Ala Ala Phe Leu Pro Gln Leu Ile Leu Leu Ser Ala Val | |
| 280 285 290 | |
| tct ttc gcc tat tac aga gac ctc gtt ttt tgt tgt ttt ctt cat acg | 1206 |
| Ser Phe Ala Tyr Tyr Arg Asp Leu Val Phe Cys Cys Phe Leu His Thr | |
| 295 300 305 310 | |

tcc att ttt gtg act ttt aac aaa gtc tgc acc tcc cag tac ttt ctt 1254
 Ser Ile Phe Val Thr Phe Asn Lys Val Cys Thr Ser Gln Tyr Phe Leu
 315 320 325
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 Trp Tyr Leu Cys Leu Leu Pro Leu Val Met Pro Leu Val Arg Met Pro
 330 335 340
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 345 350 355
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 Met Trp Leu Ala Pro Ala Tyr Val Leu Glu Phe Gln Gly Lys Asn Thr
 360 365 370
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 Phe Leu Phe Ile Trp Leu Ala Gly Leu Phe Phe Leu Leu Ile Asn Cys
 375 380 385 390
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 Ser Ile Leu Ile Gln Ile Ile Ser His Tyr Lys Glu Glu Pro Leu Thr
 395 400 405
 gag aga atc aaa tat gac tag tg tatgttccac accctctgct actgtgttac 1547
 Glu Arg Ile Lys Tyr Asp *
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 agcattctag tgaaagttcc catgttccaa cagaacttaa aagcaatggt tgccttatat 1667
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 Met Arg Gly Ala Ala Ser Ala Ser Val Arg Glu Pro Thr
 1 5 10
 ccg ctc ccg ggt aga ggc gcc ccc cgc aca aag ccc cgg gcg ggc cga 158
 Pro Leu Pro Gly Arg Gly Ala Pro Arg Thr Lys Pro Arg Ala Gly Arg
 15 20 25
 ggc ccg act gta ggg act cca gcc acc ttg gcc ctc cct gcc cgg gga 206
 Gly Pro Thr Val Gly Thr Pro Ala Thr Leu Ala Leu Pro Ala Arg Gly
 30 35 40 45
 agg ccg cgc tca agg aat ggc ctc gca tcc aaa ggc cag cga gga gcg 254

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|------|
| Arg | Pro | Arg | Ser | Arg | Asn | Gly | Leu | Ala | Ser | Lys | Gly | Gln | Arg | Gly | Ala | | |
| | | | | 50 | | | | | 55 | | | | | | 60 | | |
| gcc | cct | acg | ggg | cct | ggg | cac | aga | gct | ctg | cct | tcc | agg | gac | act | gct | | 302 |
| Ala | Pro | Thr | Gly | Pro | Gly | His | Arg | Ala | Leu | Pro | Ser | Arg | Asp | Thr | Ala | | |
| | | | 65 | | | | | 70 | | | | | 75 | | | | |
| ctt | ccc | cag | gag | aga | aac | aag | aag | ctg | gag | gct | gtg | ggg | aca | gga | att | | 350 |
| Leu | Pro | Gln | Glu | Arg | Asn | Lys | Lys | Leu | Glu | Ala | Val | Gly | Thr | Gly | Ile | | |
| | | | 80 | | | | | 85 | | | | | 90 | | | | |
| gaa | cct | aaa | gcc | atg | tcc | cag | ggc | ttg | gtg | aca | ttt | ggg | gat | gtg | gct | | 398 |
| Glu | Pro | Lys | Ala | Met | Ser | Gln | Gly | Leu | Val | Thr | Phe | Gly | Asp | Val | Ala | | |
| | | 95 | | | | 100 | | | | | 105 | | | | | | |
| gta | gat | ttc | tcc | caa | gag | gag | tgg | gag | tgg | ctg | aac | ccc | att | cag | agg | | 446 |
| Val | Asp | Phe | Ser | Gln | Glu | Glu | Trp | Glu | Trp | Leu | Asn | Pro | Ile | Gln | Arg | | |
| 110 | | | | | 115 | | | | | 120 | | | | | 125 | | |
| aac | ttg | tac | agg | aag | gtg | atg | ttg | gag | aac | tac | agg | aac | ctg | gca | tcg | | 494 |
| Asn | Leu | Tyr | Arg | Lys | Val | Met | Leu | Glu | Asn | Tyr | Arg | Asn | Leu | Ala | Ser | | |
| | | | | 130 | | | | | 135 | | | | | 140 | | | |
| ctg | gga | ctt | tgt | gtt | tct | aag | ccc | gat | gtg | atc | tcc | tcg | ttg | gaa | caa | | 542 |
| Leu | Gly | Leu | Cys | Val | Ser | Lys | Pro | Asp | Val | Ile | Ser | Ser | Leu | Glu | Gln | | |
| | | | 145 | | | | | 150 | | | | | 155 | | | | |
| gga | aaa | gag | cct | tgg | aca | gtg | aag | cga | aag | atg | aca | aga | gcc | tgg | tgc | | 590 |
| Gly | Lys | Glu | Pro | Trp | Thr | Val | Lys | Arg | Lys | Met | Thr | Arg | Ala | Trp | Cys | | |
| | | 160 | | | | | 165 | | | | | 170 | | | | | |
| cca | gac | ttg | aag | gct | gtg | tgg | aag | atc | aag | gag | tta | cct | ctc | aag | aag | | 638 |
| Pro | Asp | Leu | Lys | Ala | Val | Trp | Lys | Ile | Lys | Glu | Leu | Pro | Leu | Lys | Lys | | |
| | | 175 | | | | 180 | | | | | 185 | | | | | | |
| gac | ttc | tgc | gaa | gga | aag | cta | tcc | cag | gca | gtg | ata | aca | gag | aga | ctc | | 686 |
| Asp | Phe | Cys | Glu | Gly | Lys | Leu | Ser | Gln | Ala | Val | Ile | Thr | Glu | Arg | Leu | | |
| 190 | | | | | 195 | | | | 200 | | | | | | 205 | | |
| aca | agc | tat | aat | ctg | gag | tac | tct | ctg | tta | ggg | gaa | cac | tgg | gat | tat | | 734 |
| Thr | Ser | Tyr | Asn | Leu | Glu | Tyr | Ser | Leu | Leu | Gly | Glu | His | Trp | Asp | Tyr | | |
| | | | | 210 | | | | | 215 | | | | | 220 | | | |
| gat | gct | ctg | ttt | gag | aca | cag | ccg | ggc | ttg | gtg | act | atc | aaa | aac | ctg | | 782 |
| Asp | Ala | Leu | Phe | Glu | Thr | Gln | Pro | Gly | Leu | Val | Thr | Ile | Lys | Asn | Leu | | |
| | | | 225 | | | | | 230 | | | | | 235 | | | | |
| gct | gtt | gac | ttc | cgc | cag | cag | cta | cac | cca | gct | cag | aag | aat | ttc | tgt | | 830 |
| Ala | Val | Asp | Phe | Arg | Gln | Gln | Leu | His | Pro | Ala | Gln | Lys | Asn | Phe | Cys | | |
| | | 240 | | | | | 245 | | | | | 250 | | | | | |
| aag | aat | ggg | ata | tgg | gag | aac | aac | agt | gac | ctg | gga | tca | gca | gga | cat | | 878 |
| Lys | Asn | Gly | Ile | Trp | Glu | Asn | Asn | Ser | Asp | Leu | Gly | Ser | Ala | Gly | His | | |
| | | 255 | | | | 260 | | | | | 265 | | | | | | |
| tgt | gtg | gct | aag | cca | gat | tta | gtc | tct | tta | cta | gag | caa | gag | aag | gag | | 926 |
| Cys | Val | Ala | Lys | Pro | Asp | Leu | Val | Ser | Leu | Leu | Glu | Gln | Glu | Lys | Glu | | |
| 270 | | | | | 275 | | | | | 280 | | | | | 285 | | |
| ccc | tgg | atg | gtg | aag | cga | gag | ctg | aca | gga | agc | ctg | ttc | tca | ggc | cag | | 974 |
| Pro | Trp | Met | Val | Lys | Arg | Glu | Leu | Thr | Gly | Ser | Leu | Phe | Ser | Gly | Gln | | |
| | | | | 290 | | | | 295 | | | | | | 300 | | | |
| cga | tct | gta | cat | gag | acc | cag | gaa | tta | ttt | cca | aag | caa | gat | tca | tat | | 1022 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Ser | Val | His | Glu | Thr | Gln | Glu | Leu | Phe | Pro | Lys | Gln | Asp | Ser | Tyr | |
| | | | 305 | | | | | 310 | | | | | 315 | | | |
| gct | gaa | ggg | gta | aca | gac | aga | acc | tca | aac | act | aaa | ctt | gat | tgt | tcc | 1070 |
| Ala | Glu | Gly | Val | Thr | Asp | Arg | Thr | Ser | Asn | Thr | Lys | Leu | Asp | Cys | Ser | |
| | | 320 | | | | | 325 | | | | | 330 | | | | |
| agt | ttc | aga | gaa | aat | tgg | gat | tct | gac | tat | gtg | ttc | gga | agg | aag | ctt | 1118 |
| Ser | Phe | Arg | Glu | Asn | Trp | Asp | Ser | Asp | Tyr | Val | Phe | Gly | Arg | Lys | Leu | |
| | 335 | | | | | 340 | | | | | 345 | | | | | |
| gca | gta | ggg | caa | gag | aca | caa | ttc | agg | caa | gag | cca | att | act | cat | aac | 1166 |
| Ala | Val | Gly | Gln | Glu | Thr | Gln | Phe | Arg | Gln | Glu | Pro | Ile | Thr | His | Asn | |
| 350 | | | | | 355 | | | | 360 | | | | | | 365 | |
| aaa | acc | ctc | tct | aag | gaa | aga | gaa | cgt | aca | tat | aac | aaa | tct | gga | aga | 1214 |
| Lys | Thr | Leu | Ser | Lys | Glu | Arg | Glu | Arg | Thr | Tyr | Asn | Lys | Ser | Gly | Arg | |
| | | | | 370 | | | | | 375 | | | | | 380 | | |
| tgg | tcc | tat | ttg | gac | gat | tca | gaa | gag | aaa | gtt | cat | aat | cgt | gat | tca | 1262 |
| Trp | Ser | Tyr | Leu | Asp | Asp | Ser | Glu | Glu | Lys | Val | His | Asn | Arg | Asp | Ser | |
| | | | 385 | | | | | 390 | | | | | 395 | | | |
| att | aaa | aat | ttt | caa | aaa | agt | tca | gtg | gta | ata | aaa | caa | aca | ggc | atc | 1310 |
| Ile | Lys | Asn | Phe | Gln | Lys | Ser | Ser | Val | Val | Ile | Lys | Gln | Thr | Gly | Ile | |
| | | 400 | | | | | 405 | | | | | 410 | | | | |
| tat | gca | gga | aaa | aag | ctt | ttc | aag | tgt | aat | gaa | tgt | aag | aaa | act | ttt | 1358 |
| Tyr | Ala | Gly | Lys | Lys | Leu | Phe | Lys | Cys | Asn | Glu | Cys | Lys | Lys | Thr | Phe | |
| | 415 | | | | | 420 | | | | | 425 | | | | | |
| acc | cag | agc | tca | tct | ctt | act | gtt | cat | cag | aga | att | cac | act | gga | gag | 1406 |
| Thr | Gln | Ser | Ser | Ser | Leu | Thr | Val | His | Gln | Arg | Ile | His | Thr | Gly | Glu | |
| 430 | | | | | 435 | | | | | 440 | | | | | 445 | |
| aaa | cct | tat | aaa | tgt | aat | gaa | tgt | ggg | aag | gcc | ttt | agt | gac | ggc | tca | 1454 |
| Lys | Pro | Tyr | Lys | Cys | Asn | Glu | Cys | Gly | Lys | Ala | Phe | Ser | Asp | Gly | Ser | |
| | | | | 450 | | | | 455 | | | | | | 460 | | |
| tcc | ttt | gcc | cga | cac | cag | aga | tgt | cac | act | ggc | aag | aag | ccc | tat | gag | 1502 |
| Ser | Phe | Ala | Arg | His | Gln | Arg | Cys | His | Thr | Gly | Lys | Lys | Pro | Tyr | Glu | |
| | | | 465 | | | | | 470 | | | | | 475 | | | |
| tgc | att | gag | tgt | ggg | aaa | gct | ttc | ata | cag | aac | aca | tcc | ctt | atc | cgt | 1550 |
| Cys | Ile | Glu | Cys | Gly | Lys | Ala | Phe | Ile | Gln | Asn | Thr | Ser | Leu | Ile | Arg | |
| | | 480 | | | | | 485 | | | | | 490 | | | | |
| cac | tgg | aga | tac | tat | cat | act | ggg | gag | aaa | ccc | ttt | gat | tgc | atc | gat | 1598 |
| His | Trp | Arg | Tyr | Tyr | His | Thr | Gly | Glu | Lys | Pro | Phe | Asp | Cys | Ile | Asp | |
| | 495 | | | | | 500 | | | | | 505 | | | | | |
| tgt | ggg | aaa | gcc | ttc | agt | gac | cac | ata | ggg | ctt | aat | caa | cac | agg | aga | 1646 |
| Cys | Gly | Lys | Ala | Phe | Ser | Asp | His | Ile | Gly | Leu | Asn | Gln | His | Arg | Arg | |
| 510 | | | | | 515 | | | | | 520 | | | | | 525 | |
| att | cat | act | gga | gag | aaa | cct | tac | aaa | tgt | gat | gta | tgt | cac | aaa | tcc | 1694 |
| Ile | His | Thr | Gly | Glu | Lys | Pro | Tyr | Lys | Cys | Asp | Val | Cys | His | Lys | Ser | |
| | | | | 530 | | | | | 535 | | | | | 540 | | |
| ttc | agg | tat | ggg | tcc | tcc | ctt | act | gta | cat | caa | agg | att | cat | acc | gga | 1742 |
| Phe | Arg | Tyr | Gly | Ser | Ser | Leu | Thr | Val | His | Gln | Arg | Ile | His | Thr | Gly | |
| | | | 545 | | | | | 550 | | | | | 555 | | | |
| gaa | aaa | cca | tat | gaa | tgt | gat | gtt | tgc | aga | aaa | gcc | ttc | agc | cat | cat | 1790 |

| | |
|---|------|
| Glu Lys Pro Tyr Glu Cys Asp Val Cys Arg Lys Ala Phe Ser His His | |
| 560 565 570 | |
| gca tca ctc act caa cat caa aga gta cat tct gga gaa aag cct ttt | 1838 |
| Ala Ser Leu Thr Gln His Gln Arg Val His Ser Gly Glu Lys Pro Phe | |
| 575 580 585 | |
| aag tgt aaa gag tgc gga aaa gct ttt agg cag aat ata cac ctt gcc | 1886 |
| Lys Cys Lys Glu Cys Gly Lys Ala Phe Arg Gln Asn Ile His Leu Ala | |
| 590 595 600 605 | |
| agt cat tta agg att cat act ggg gag aag cct ttt gaa tgt gcg gag | 1934 |
| Ser His Leu Arg Ile His Thr Gly Glu Lys Pro Phe Glu Cys Ala Glu | |
| 610 615 620 | |
| tgt gga aaa tcc ttc agc atc agt tct cag ctt gcc act cat cag aga | 1982 |
| Cys Gly Lys Ser Phe Ser Ile Ser Ser Gln Leu Ala Thr His Gln Arg | |
| 625 630 635 | |
| atc cat act gga gag aag ccc tat gaa tgt aag gtt tgt agt aaa gcg | 2030 |
| Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Val Cys Ser Lys Ala | |
| 640 645 650 | |
| ttc acc cag aag gct cac ctt gca cag cat cag aaa acc cat aca gga | 2078 |
| Phe Thr Gln Lys Ala His Leu Ala Gln His Gln Lys Thr His Thr Gly | |
| 655 660 665 | |
| gag aaa cca tat gag tgc aag gaa tgc ggt aaa gcc ttc agc cag acc | 2126 |
| Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser Gln Thr | |
| 670 675 680 685 | |
| aca cac ctc att caa cat cag aga gtt cac act ggt gag aaa ccc tat | 2174 |
| Thr His Leu Ile Gln His Gln Arg Val His Thr Gly Glu Lys Pro Tyr | |
| 690 695 700 | |
| aaa tgt atg gaa tgt ggg aag gcc ttt ggt gat aac tca tcc tgt act | 2222 |
| Lys Cys Met Glu Cys Gly Lys Ala Phe Gly Asp Asn Ser Ser Cys Thr | |
| 705 710 715 | |
| caa cat caa aga ctg cac act ggc caa aga cct tat gaa tgt att gag | 2270 |
| Gln His Gln Arg Leu His Thr Gly Gln Arg Pro Tyr Glu Cys Ile Glu | |
| 720 725 730 | |
| tgt gga aag gca ttc aag aca aaa tcc tcc ctt att tgt cat cgc aga | 2318 |
| Cys Gly Lys Ala Phe Lys Thr Lys Ser Ser Leu Ile Cys His Arg Arg | |
| 735 740 745 | |
| agt cat act gga gaa aaa cct tat gaa tgc agt gtg tgt ggc aaa gcc | 2366 |
| Ser His Thr Gly Glu Lys Pro Tyr Glu Cys Ser Val Cys Gly Lys Ala | |
| 750 755 760 765 | |
| ttt agt cat cgt caa tcc ctt agt gta cat cag aga atc cat tct gga | 2414 |
| Phe Ser His Arg Gln Ser Leu Ser Val His Gln Arg Ile His Ser Gly | |
| 770 775 780 | |
| aag aaa cca tat gaa tgt aag gaa tgt agg aaa acc ttc atc caa att | 2462 |
| Lys Lys Pro Tyr Glu Cys Lys Glu Cys Arg Lys Thr Phe Ile Gln Ile | |
| 785 790 795 | |
| gga cac ctt aat caa cat aag aga gtt cat act gga gag aga tct tat | 2510 |
| Gly His Leu Asn Gln His Lys Arg Val His Thr Gly Glu Arg Ser Tyr | |
| 800 805 810 | |
| aac tat aag aaa agc aga aaa gtc ttc agg caa act gct cac tta gct | 2558 |

Asn Tyr Lys Lys Ser Arg Lys Val Phe Arg Gln Thr Ala His Leu Ala
 815 820 825

cat cat cag cga att cat act gga gag tcg tca aca tgc ccc tct tta 2606
 His His Gln Arg Ile His Thr Gly Glu Ser Ser Thr Cys Pro Ser Leu
 830 835 840 845

cct tcc acg tca aat cct gtg gat ctg ttt ccc aaa ttt ctc tgg aat 2654
 Pro Ser Thr Ser Asn Pro Val Asp Leu Phe Pro Lys Phe Leu Trp Asn
 850 855 860

cca tcc tcc ctc cca tca cca tag cctcgagacg tcatttctgt ttgactactc 2708
 Pro Ser Ser Leu Pro Ser Pro *
 865

cagcagttta aaaccccatc tccctgcct tttgttttct ttttgtccct tattagttag 2768
 ttcttcacat aagtgtaaat gtaacttatt cactcctctt gtaaaactta tagtttcttt 2828
 aaattggtta atgtgtgaga tgtgctcagc acagtgcctg gtccatagta agtgctcagt 2888
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 ctttaaaaag atg cag cac ctg gac tgc gac ctt tgg ctc cag ctg gaa 169
 Met Gln His Leu Asp Cys Asp Leu Trp Leu Gln Leu Glu
 1 5 10

ctt tcc agc cag tgt gtg ctt ctg ggg aac gga gtg gct atg aat ctg 217
 Leu Ser Ser Gln Cys Val Leu Leu Gly Asn Gly Val Ala Met Asn Leu
 15 20 25

cat gta aag act ttg tcc ctc atg act tgg agg tcc aga ttc ctg gaa 265
 His Val Lys Thr Leu Ser Leu Met Thr Trp Arg Ser Arg Phe Leu Glu
 30 35 40 45

gag tct ttt tgg tca ctg gag gaa aca gcg gca ttg gca aag caa ctg 313
 Glu Ser Phe Trp Ser Leu Glu Glu Thr Ala Ala Leu Ala Lys Gln Leu
 50 55 60

ccc ttg aaa tcg cca agc gag aac att ttt ctg cac att gtg gac ttg 361
 Pro Leu Lys Ser Pro Ser Glu Asn Ile Phe Leu His Ile Val Asp Leu
 65 70 75

tct gat ccc aag caa atc tgg aaa ttt gtt gaa aat ttc aag cag gaa 409
 Ser Asp Pro Lys Gln Ile Trp Lys Phe Val Glu Asn Phe Lys Gln Glu

| 80 | 85 | 90 | |
|---|-----|-----|-----|
| cat aaa ctc cat gtt ctg atc aat aat gca ggt tgc atg gtc aat aaa | | | 457 |
| His Lys Leu His Val Leu Ile Asn Asn Ala Gly Cys Met Val Asn Lys | | | |
| 95 | 100 | 105 | |
| aga gag ctc aca gaa gat gga ctt gaa aaa aac ttt gct gcc aat act | | | 505 |
| Arg Glu Leu Thr Glu Asp Gly Leu Glu Lys Asn Phe Ala Ala Asn Thr | | | |
| 110 | 115 | 120 | 125 |
| ctg ggt gtg tac att ctc acg acc ggc ctg atc cct gtg ctg gag aaa | | | 553 |
| Leu Gly Val Tyr Ile Leu Thr Thr Gly Leu Ile Pro Val Leu Glu Lys | | | |
| | 130 | 135 | 140 |
| gaa cac gac ccc cga gtg ata acc gtc tcc tca gga gga atg ttg gtt | | | 601 |
| Glu His Asp Pro Arg Val Ile Thr Val Ser Ser Gly Gly Met Leu Val | | | |
| | 145 | 150 | 155 |
| cag aaa ctg aac acc aat gat ctc cag tcc gaa aga aca cca ttt gat | | | 649 |
| Gln Lys Leu Asn Thr Asn Asp Leu Gln Ser Glu Arg Thr Pro Phe Asp | | | |
| | 160 | 165 | 170 |
| gga act atg gtc tat gca caa aac aag agg cag caa gtg gtt ctg acg | | | 697 |
| Gly Thr Met Val Tyr Ala Gln Asn Lys Arg Gln Gln Val Val Leu Thr | | | |
| | 175 | 180 | 185 |
| gag cgg tgg gcc caa ggg cac ccg gcc atc cat ttt tct tcc atg cat | | | 745 |
| Glu Arg Trp Ala Gln Gly His Pro Ala Ile His Phe Ser Ser Met His | | | |
| 190 | 195 | 200 | 205 |
| cct ggc tgg gcc gac acc cca ggt gtg agg cag gcg atg ccg ggg ttc | | | 793 |
| Pro Gly Trp Ala Asp Thr Pro Gly Val Arg Gln Ala Met Pro Gly Phe | | | |
| | 210 | 215 | 220 |
| cac gcc agg ttc agg gac cgc ctg cgc tcc gag gcc cag ggc gcg gac | | | 841 |
| His Ala Arg Phe Arg Asp Arg Leu Arg Ser Glu Ala Gln Gly Ala Asp | | | |
| | 225 | 230 | 235 |
| acc atg ctg tgg ctg gcc ctc tcc tct gcc gca gcc gca cag ccc agc | | | 889 |
| Thr Met Leu Trp Leu Ala Leu Ser Ser Ala Ala Ala Ala Gln Pro Ser | | | |
| | 240 | 245 | 250 |
| ggc cgc tct aga gta tcc ctc gag ggg ccc aag ctt acg cgt acc cag | | | 937 |
| Gly Arg Ser Arg Val Ser Leu Glu Gly Pro Lys Leu Thr Arg Thr Gln | | | |
| | 255 | 260 | 265 |
| ctt tct tgt aca aag tgg tcc cta tag tgagt cgtatatgag ctaggcacac | | | 989 |
| Leu Ser Cys Thr Lys Trp Ser Leu * | | | |
| 270 | 275 | | |
| agggcaatcc | | | 999 |

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 tgctgcag atg ctg gag atg aac atg gcc atc gcc ttc ccc gca gcg ccc 170
 Met Leu Glu Met Asn Met Ala Ile Ala Phe Pro Ala Ala Pro
 1 5 10
 ctg ctg acc gtc atc ctg gcc ctc gtc ggg atg gag gcc atc atg tcg 218
 Leu Leu Thr Val Ile Leu Ala Leu Val Gly Met Glu Ala Ile Met Ser
 15 20 25 30
 gag ttc ttc aac gac acc acc acc gcc ttc tac atc atc ctc atc gtg 266
 Glu Phe Phe Asn Asp Thr Thr Thr Ala Phe Tyr Ile Ile Leu Ile Val
 35 40 45
 tgg ctc gcg gac cag tat gac gcc atc tgc tgc cac acc agc acc agc 314
 Trp Leu Ala Asp Gln Tyr Asp Ala Ile Cys Cys His Thr Ser Thr Ser
 50 55 60
 aag cgg cat tgg ctg cgg ttc ttc tat ctc tac cac ttc gcc ttc tat 362
 Lys Arg His Trp Leu Arg Phe Phe Tyr Leu Tyr His Phe Ala Phe Tyr
 65 70 75
 gcc tat cac tac cgc ttc aat ggg cag tat agc agc ctg gcc ctg gtc 410
 Ala Tyr His Tyr Arg Phe Asn Gly Gln Tyr Ser Ser Leu Ala Leu Val
 80 85 90
 acc tcc tgg ctc ttc atc cag cat tcc atg atc tac ttc ttc cac cac 458
 Thr Ser Trp Leu Phe Ile Gln His Ser Met Ile Tyr Phe Phe His His
 95 100 105 110
 tac gag ctg cct gcc atc ctg cag cag gtc cgc atc cag gag atg ctg 506
 Tyr Glu Leu Pro Ala Ile Leu Gln Gln Val Arg Ile Gln Glu Met Leu
 115 120 125
 ctt cag gcg ccg aca ctg ggc ccc ggg acc ccc acg gcg ctg ccc gat 554
 Leu Gln Ala Pro Thr Leu Gly Pro Gly Thr Pro Thr Ala Leu Pro Asp
 130 135 140
 gac atg aac aac aac tcg ggc gcc ccg gct aca gcc cct gac tct gcc 602
 Asp Met Asn Asn Asn Ser Gly Ala Pro Ala Thr Ala Pro Asp Ser Ala
 145 150 155
 ggc cag ccc ccc gcc ctg ggc ccc gtc tcg cct ggg ggc cag cgg gag 650
 Gly Gln Pro Pro Ala Leu Gly Pro Val Ser Pro Gly Gly Gln Arg Glu
 160 165 170
 tcc cgg gcc tgt ggc agc ggc gcc cag ctc cct ggt ggc cgc ggc agc 698
 Ser Arg Ala Cys Gly Ser Gly Ala Gln Leu Pro Gly Gly Arg Gly Ser
 175 180 185 190
 ctc agt ggc agc agc tgc cgg tgg tga cctgg gttggatggc agagaccgct 750
 Leu Ser Gly Ser Ser Cys Arg Trp *
 195
 gccatcatca cagacgcctc ctctctgtcc ggcctgagcg cctccctcct ggagcggcgt 810
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cttgcacttt cttaagcagg atattcctgc tctgagctgg gagttctttg tcaatagatt 180
tgagacgctt tctttggaag ccagctaca tttggattgt aacaaggaat ttccttttcc 240
tacaaccatc actgctgtga ggaccaatgt tgctaacctc agcgatgcag ccttatggaa 300
gatcaagaga gctcgttttg caagaaaccg ccagaagagt gtacgttccc tgagggacag 360
cgtgaaaggg cctgtggaat ccaagagggc gctctccctc cctgagacct tgacctcaa 420
aattcct atg agg ttg acc agg cat gag cag tct gct cca gct ctc ggt 469
      Met Arg Leu Thr Arg His Glu Gln Ser Ala Pro Ala Leu Gly
        1             5             10

ggg aca ccc gaa cag acg cca gga caa caa tct cct gag aat gac aac 517
Gly Thr Pro Glu Gln Thr Pro Gly Gln Gln Ser Pro Glu Asn Asp Asn
  15             20             25             30

acc atc aag gac ctg ctc cca gaa gac gct ggg atc gac cac cag aca 565
Thr Ile Lys Asp Leu Leu Pro Glu Asp Ala Gly Ile Asp His Gln Thr
      35             40             45

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| | |
|---|------|
| gtt cac cag ctg att aca gtg ctc atg aag ttc atg gcc aag gat gaa | 613 |
| Val His Gln Leu Ile Thr Val Leu Met Lys Phe Met Ala Lys Asp Glu | |
| 50 55 60 | |
| agc agc gct gag tca gac atc agc agt gca aag gcc ttc aac acg gtc | 661 |
| Ser Ser Ala Glu Ser Asp Ile Ser Ser Ala Lys Ala Phe Asn Thr Val | |
| 65 70 75 | |
| aag cga cac ctg tac gtc tta ctc ggc tat gac cag cag gaa ggt tgc | 709 |
| Lys Arg His Leu Tyr Val Leu Leu Gly Tyr Asp Gln Gln Glu Gly Cys | |
| 80 85 90 | |
| ttc atg att gca cct caa aaa atg cgc ctg tca act tgc ttt aat gca | 757 |
| Phe Met Ile Ala Pro Gln Lys Met Arg Leu Ser Thr Cys Phe Asn Ala | |
| 95 100 105 110 | |
| ttc att gca gga att gcc caa gtt atg gac tat aac att aac ttg gga | 805 |
| Phe Ile Ala Gly Ile Ala Gln Val Met Asp Tyr Asn Ile Asn Leu Gly | |
| 115 120 125 | |
| aaa cac ctt ctc ccc tta gtg gtt cag gtg ctc aaa tac tgc tct tgt | 853 |
| Lys His Leu Leu Pro Leu Val Val Gln Val Leu Lys Tyr Cys Ser Cys | |
| 130 135 140 | |
| cct caa ctc cgg cat tat ttc caa cag ccg cct cgt tgc tcc ctc tgg | 901 |
| Pro Gln Leu Arg His Tyr Phe Gln Gln Pro Pro Arg Cys Ser Leu Trp | |
| 145 150 155 | |
| tcc cta aag cct cac atc cgg cag atg tgg ttg aag gcc ttg ctt gtc | 949 |
| Ser Leu Lys Pro His Ile Arg Gln Met Trp Leu Lys Ala Leu Leu Val | |
| 160 165 170 | |
| atc ctt tac aag tat cca tac cga gac tgt gat atc agc aag atc ctg | 997 |
| Ile Leu Tyr Lys Tyr Pro Tyr Arg Asp Cys Asp Ile Ser Lys Ile Leu | |
| 175 180 185 190 | |
| ctg cat ctg att cac ata aca gtc aat aca ctc aat gcg cag tat cat | 1045 |
| Leu His Leu Ile His Ile Thr Val Asn Thr Leu Asn Ala Gln Tyr His | |
| 195 200 205 | |
| agc tgc aag ccc cat gcc acg gca gga cct ttg tac agt gac aac agt | 1093 |
| Ser Cys Lys Pro His Ala Thr Ala Gly Pro Leu Tyr Ser Asp Asn Ser | |
| 210 215 220 | |
| aac ata agc aga tac agc gaa aaa gaa aaa gaa gaa gat agt gtt ttt | 1141 |
| Asn Ile Ser Arg Tyr Ser Glu Lys Glu Lys Glu Glu Asp Ser Val Phe | |
| 225 230 235 | |
| gat gaa tct gat att cat gat aca cct act gga ccc tgc aat aaa gag | 1189 |
| Asp Glu Ser Asp Ile His Asp Thr Pro Thr Gly Pro Cys Asn Lys Glu | |
| 240 245 250 | |
| tct caa act ttt ttt gca aga ttg aaa aga ata ggc ggc agc aaa atg | 1237 |
| Ser Gln Thr Phe Phe Ala Arg Leu Lys Arg Ile Gly Gly Ser Lys Met | |
| 255 260 265 270 | |
| gtg aaa tat cag ccg gtt gag atg aat gtt cag aga agt gaa ata gaa | 1285 |
| Val Lys Tyr Gln Pro Val Glu Met Asn Val Gln Arg Ser Glu Ile Glu | |
| 275 280 285 | |
| ctg gct gaa tat aga gag acg ggt gca tta caa gac agc ctt ctc cac | 1333 |
| Leu Ala Glu Tyr Arg Glu Thr Gly Ala Leu Gln Asp Ser Leu Leu His | |
| 290 295 300 | |

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| tgt gtg aga gaa gaa agc att ccg aaa aaa aag cta cgc tct ttc aaa | 1381 |
| Cys Val Arg Glu Glu Ser Ile Pro Lys Lys Lys Leu Arg Ser Phe Lys | |
| 305 310 315 | |
| caa aaa tct ctt gat ata ggg aat gca gac tcg ctt ttg ttt aca tta | 1429 |
| Gln Lys Ser Leu Asp Ile Gly Asn Ala Asp Ser Leu Leu Phe Thr Leu | |
| 320 325 330 | |
| gac gaa cat cgt agg aag tcg tgc ata gat cgg tgt gac ata gag aag | 1477 |
| Asp Glu His Arg Arg Lys Ser Cys Ile Asp Arg Cys Asp Ile Glu Lys | |
| 335 340 345 350 | |
| cct ccg acc caa gct gcg tat atc gca caa aga cca aac gac cct gga | 1525 |
| Pro Pro Thr Gln Ala Ala Tyr Ile Ala Gln Arg Pro Asn Asp Pro Gly | |
| 355 360 365 | |
| cgt tct aga cag aac tct gct acg agg cct gac aat agt gaa atc ccc | 1573 |
| Arg Ser Arg Gln Asn Ser Ala Thr Arg Pro Asp Asn Ser Glu Ile Pro | |
| 370 375 380 | |
| gag aac cca gct atg gaa ggg ttt cca gat gct cga agg cct gtc ata | 1621 |
| Glu Asn Pro Ala Met Glu Gly Phe Pro Asp Ala Arg Arg Pro Val Ile | |
| 385 390 395 | |
| cca gag gtt agg tta aac tgt atg gag act ttc gag gtg aaa gtt gac | 1669 |
| Pro Glu Val Arg Leu Asn Cys Met Glu Thr Phe Glu Val Lys Val Asp | |
| 400 405 410 | |
| tcg ccg gta aag cct gct cct aaa gag gat tta gat ctg ata gat cta | 1717 |
| Ser Pro Val Lys Pro Ala Pro Lys Glu Asp Leu Asp Leu Ile Asp Leu | |
| 415 420 425 430 | |
| tcc tca gat tca acc tcg ggg cct gaa aaa cac tct ata ctc tca acc | 1765 |
| Ser Ser Asp Ser Thr Ser Gly Pro Glu Lys His Ser Ile Leu Ser Thr | |
| 435 440 445 | |
| tcc gac agc gac tct ctt gta ttt gag cct ctt ccc cct ctc aga ata | 1813 |
| Ser Asp Ser Asp Ser Leu Val Phe Glu Pro Leu Pro Pro Leu Arg Ile | |
| 450 455 460 | |
| gtc gag agt gac gaa gaa gag gag acg atg aac caa ggc gat gac ggc | 1861 |
| Val Glu Ser Asp Glu Glu Glu Glu Thr Met Asn Gln Gly Asp Asp Gly | |
| 465 470 475 | |
| ccc tcc ggt aaa aat gct gcc tct tct ccc tcc atc ccc agc cat ccc | 1909 |
| Pro Ser Gly Lys Asn Ala Ala Ser Ser Pro Ser Ile Pro Ser His Pro | |
| 480 485 490 | |
| tcc gtc ctc agc ctg agc aca gct ccg ctt gta caa gta agt gtg gag | 1957 |
| Ser Val Leu Ser Leu Ser Thr Ala Pro Leu Val Gln Val Ser Val Glu | |
| 495 500 505 510 | |
| gat tgt tcc aaa gac ttt tct tct aag gac tca gga aat aat cag tca | 2005 |
| Asp Cys Ser Lys Asp Phe Ser Ser Lys Asp Ser Gly Asn Asn Gln Ser | |
| 515 520 525 | |
| gca ggg aac act gac tct gcc ctc atc act ctg gaa gac cct atg gac | 2053 |
| Ala Gly Asn Thr Asp Ser Ala Leu Ile Thr Leu Glu Asp Pro Met Asp | |
| 530 535 540 | |
| gcc gaa gga tcc tca aag cca gag gag ctg cca gag ttc tcc tgc ggt | 2101 |
| Ala Glu Gly Ser Ser Lys Pro Glu Glu Leu Pro Glu Phe Ser Cys Gly | |
| 545 550 555 | |

| | |
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| agc cca ctg acg ctg aag caa aaa cga gac ctc ctt cag aag tcg ttt | 2149 |
| Ser Pro Leu Thr Leu Lys Gln Lys Arg Asp Leu Leu Gln Lys Ser Phe | |
| 560 565 570 | |
| gct ctc ccc gag atg tcg ctg gat gat cac cct gac ccg ggc act gag | 2197 |
| Ala Leu Pro Glu Met Ser Leu Asp Asp His Pro Asp Pro Gly Thr Glu | |
| 575 580 585 590 | |
| ggg gag aag cct ggg gag ctg atg cca agt tca ggg gca aaa acc gtc | 2245 |
| Gly Glu Lys Pro Gly Glu Leu Met Pro Ser Ser Gly Ala Lys Thr Val | |
| 595 600 605 | |
| ctc ctc aaa gtt ccc gaa gat gca gag aac ccc aca gaa agt gag aag | 2293 |
| Leu Leu Lys Val Pro Glu Asp Ala Glu Asn Pro Thr Glu Ser Glu Lys | |
| 610 615 620 | |
| cct gat acc agt gca gaa tct gat aca gaa cag aat cct gaa agg aag | 2341 |
| Pro Asp Thr Ser Ala Glu Ser Asp Thr Glu Gln Asn Pro Glu Arg Lys | |
| 625 630 635 | |
| gtg gaa gag gat gga gct gag gaa tcc gaa ttt aag att cag att gtt | 2389 |
| Val Glu Glu Asp Gly Ala Glu Glu Ser Glu Phe Lys Ile Gln Ile Val | |
| 640 645 650 | |
| ccc agg cag agg aag cag agg aag att gct gtc agt gct atc cag aga | 2437 |
| Pro Arg Gln Arg Lys Gln Arg Lys Ile Ala Val Ser Ala Ile Gln Arg | |
| 655 660 665 670 | |
| gag tac ctc gac atc tcc ttc aac att ctg gac aaa ctg gga gaa cag | 2485 |
| Glu Tyr Leu Asp Ile Ser Phe Asn Ile Leu Asp Lys Leu Gly Glu Gln | |
| 675 680 685 | |
| aaa gat cca gat cct tct act aaa gga ctt tca act ttg gaa atg cca | 2533 |
| Lys Asp Pro Asp Pro Ser Thr Lys Gly Leu Ser Thr Leu Glu Met Pro | |
| 690 695 700 | |
| cga gaa tct tca tct gcc cct acg tta gat gca ggt gtg ccg gaa aca | 2581 |
| Arg Glu Ser Ser Ser Ala Pro Thr Leu Asp Ala Gly Val Pro Glu Thr | |
| 705 710 715 | |
| agt agc cat tcc tca ata tca act cag tat agg cag atg aaa agg gga | 2629 |
| Ser Ser His Ser Ser Ile Ser Thr Gln Tyr Arg Gln Met Lys Arg Gly | |
| 720 725 730 | |
| tcc ctg gga gtt ctg aca atg agc cag tta atg aag cgg cag ctg gag | 2677 |
| Ser Leu Gly Val Leu Thr Met Ser Gln Leu Met Lys Arg Gln Leu Glu | |
| 735 740 745 750 | |
| cat cag tct agc gcc ccc cat aac atc agc aac tgg gac act gaa cag | 2725 |
| His Gln Ser Ser Ala Pro His Asn Ile Ser Asn Trp Asp Thr Glu Gln | |
| 755 760 765 | |
| ata cag cct ggg aaa cgc cag tgt aac gtg cca aca tgc cta aac cct | 2773 |
| Ile Gln Pro Gly Lys Arg Gln Cys Asn Val Pro Thr Cys Leu Asn Pro | |
| 770 775 780 | |
| gac ctg gag gga cag cca ttg agg atg aga ggt gcc acc aaa tcc agc | 2821 |
| Asp Leu Glu Gly Gln Pro Leu Arg Met Arg Gly Ala Thr Lys Ser Ser | |
| 785 790 795 | |
| ctg cta tca gca cca agc ata gtc agt atg ttt gtg cct gca cct gaa | 2869 |
| Leu Leu Ser Ala Pro Ser Ile Val Ser Met Phe Val Pro Ala Pro Glu | |
| 800 805 810 | |

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| gag ttc act gac gag cag ccg acg gtg atg acg gac aaa tgc cat gac | 2917 |
| Glu Phe Thr Asp Glu Gln Pro Thr Val Met Thr Asp Lys Cys His Asp | |
| 815 820 825 830 | |
| tgt ggg gcc att ctt gaa gaa tac gat gaa gag aca ctt ggg cta gcc | 2965 |
| Cys Gly Ala Ile Leu Glu Glu Tyr Asp Glu Glu Thr Leu Gly Leu Ala | |
| 835 840 845 | |
| atc gtg gtc ctc tcc aca ttc att cac tta agc cca gac ctg gca gcc | 3013 |
| Ile Val Val Leu Ser Thr Phe Ile His Leu Ser Pro Asp Leu Ala Ala | |
| 850 855 860 | |
| ccg ctg ctg ctg gat atc atg cag tct gtg gga aga ttg gca tcc agt | 3061 |
| Pro Leu Leu Leu Asp Ile Met Gln Ser Val Gly Arg Leu Ala Ser Ser | |
| 865 870 875 | |
| act acc ttt tct aat caa gca gaa agc atg atg gtt ccc ggc aat gcg | 3109 |
| Thr Thr Phe Ser Asn Gln Ala Glu Ser Met Met Val Pro Gly Asn Ala | |
| 880 885 890 | |
| gcg ggg gtg gcc aag cag ttc ctg cgc tgc atc ttc cat cag ttg gcc | 3157 |
| Ala Gly Val Ala Lys Gln Phe Leu Arg Cys Ile Phe His Gln Leu Ala | |
| 895 900 905 910 | |
| ccc aac ggc atc ttc ccg cag ctg ttc caa agc acg atc aaa gat ggg | 3205 |
| Pro Asn Gly Ile Phe Pro Gln Leu Phe Gln Ser Thr Ile Lys Asp Gly | |
| 915 920 925 | |
| act ttt tta cgg acc tta gcc tcg tct ctg atg gac ttc aat gag ctg | 3253 |
| Thr Phe Leu Arg Thr Leu Ala Ser Ser Leu Met Asp Phe Asn Glu Leu | |
| 930 935 940 | |
| agc tcc atc gca gct ctc agt cag ctc cta gag ggt cta aat aac aaa | 3301 |
| Ser Ser Ile Ala Ala Leu Ser Gln Leu Leu Glu Gly Leu Asn Asn Lys | |
| 945 950 955 | |
| aag aat tta cca gca ggg ggt gct atg att cgc tgt ttg gaa aac att | 3349 |
| Lys Asn Leu Pro Ala Gly Gly Ala Met Ile Arg Cys Leu Glu Asn Ile | |
| 960 965 970 | |
| gca acc ttc atg gaa gct ttg cct atg gat tct cct agt agc ctc tgg | 3397 |
| Ala Thr Phe Met Glu Ala Leu Pro Met Asp Ser Pro Ser Ser Leu Trp | |
| 975 980 985 990 | |
| acc aca att agc aac cag ttt cag aca ttt ttt gcc aag ctg cct tgt | 3445 |
| Thr Thr Ile Ser Asn Gln Phe Gln Thr Phe Phe Ala Lys Leu Pro Cys | |
| 995 1000 1005 | |
| gtt tta cct ctg aag tgt tct tta gat tcc agt tta aga att atg att | 3493 |
| Val Leu Pro Leu Lys Cys Ser Leu Asp Ser Ser Leu Arg Ile Met Ile | |
| 1010 1015 1020 | |
| tgc ctc ttg aag atc cct tct acc aat gct aca agg agt ttg ttg gaa | 3541 |
| Cys Leu Leu Lys Ile Pro Ser Thr Asn Ala Thr Arg Ser Leu Leu Glu | |
| 1025 1030 1035 | |
| cca ttt tca aaa ctg ctc agc ttt gta att cag aat gcc gtc ttc act | 3589 |
| Pro Phe Ser Lys Leu Leu Ser Phe Val Ile Gln Asn Ala Val Phe Thr | |
| 1040 1045 1050 | |
| ctg gcc tac ctg gtg gag ctg tgt ggc tta tgt tac cga gct ttc act | 3637 |
| Leu Ala Tyr Leu Val Glu Leu Cys Gly Leu Cys Tyr Arg Ala Phe Thr | |
| 1055 1060 1065 1070 | |

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| aag gaa cga gat aaa ttc tac ttg tct cgt agt gtt gtt cta gaa ctt Lys Glu Arg Asp Lys Phe Tyr Leu Ser Arg Ser Val Val Leu Glu Leu 1075 1080 1085 | 3685 |
| ctg cag gcc cta aag ctc aaa tct cct tta cca gat aca aac ctt ctt Leu Gln Ala Leu Lys Leu Lys Ser Pro Leu Pro Asp Thr Asn Leu Leu 1090 1095 1100 | 3733 |
| ctg ctt gtt cag ttt att tgt gca gat gct gga acc aaa cta gct gag Leu Leu Val Gln Phe Ile Cys Ala Asp Ala Gly Thr Lys Leu Ala Glu 1105 1110 1115 | 3781 |
| tca aca atc ctg agc aag cag atg ata gcc tct gta cct gga tgt ggg Ser Thr Ile Leu Ser Lys Gln Met Ile Ala Ser Val Pro Gly Cys Gly 1120 1125 1130 | 3829 |
| act gca gcg atg gag tgt gtg agg cag tac atc aac gaa gtg ctg gat Thr Ala Ala Met Glu Cys Val Arg Gln Tyr Ile Asn Glu Val Leu Asp 1135 1140 1145 1150 | 3877 |
| ttc atg gca gac atg cac acg ctg acc aaa ctg aag agc cac atg aag Phe Met Ala Asp Met His Thr Leu Thr Lys Leu Lys Ser His Met Lys 1155 1160 1165 | 3925 |
| aca tgt tcc cag cct ctg cat gaa gat acc ttt ggg gga cat ctc aaa Thr Cys Ser Gln Pro Leu His Glu Asp Thr Phe Gly Gly His Leu Lys 1170 1175 1180 | 3973 |
| gtg ggg ctg gcc cag att gca gcc atg gac atc tca cgg ggc aac cac Val Gly Leu Ala Gln Ile Ala Ala Met Asp Ile Ser Arg Gly Asn His 1185 1190 1195 | 4021 |
| aga gat aac aaa gct gtg atc cgc tat ctg cct tgg ctt tat cat ccc Arg Asp Asn Lys Ala Val Ile Arg Tyr Leu Pro Trp Leu Tyr His Pro 1200 1205 1210 | 4069 |
| ccc tct gca atg cag caa gga cct aaa gaa ttc att gag tgt gtc tcc Pro Ser Ala Met Gln Gln Gly Pro Lys Glu Phe Ile Glu Cys Val Ser 1215 1220 1225 1230 | 4117 |
| cat atc cga ctg ttg tcc tgg ctg ctg ctg ggt tcc ctc act cac aat His Ile Arg Leu Leu Ser Trp Leu Leu Leu Gly Ser Leu Thr His Asn 1235 1240 1245 | 4165 |
| gca gtg tgc cca aat gcc tcc tct ccc tgc ctg ccc att cct ctg gat Ala Val Cys Pro Asn Ala Ser Ser Pro Cys Leu Pro Ile Pro Leu Asp 1250 1255 1260 | 4213 |
| gca ggc tcc cac gtt gca gac cat ctt att gtt atc ctg att gga ttt Ala Gly Ser His Val Ala Asp His Leu Ile Val Ile Leu Ile Gly Phe 1265 1270 1275 | 4261 |
| cca gag caa tca aag acc tcc gtg ctg cac atg tgc tcc ctc ttc cac Pro Glu Gln Ser Lys Thr Ser Val Leu His Met Cys Ser Leu Phe His 1280 1285 1290 | 4309 |
| gcg ttc atc ttt gct cag ctg tgg aca gtt tat tgc gag caa agt gcc Ala Phe Ile Phe Ala Gln Leu Trp Thr Val Tyr Cys Glu Gln Ser Ala 1295 1300 1305 1310 | 4357 |
| gtc gct aca aat ctc caa aat cag aat gaa ttc agc ttc acg gcg ata Val Ala Thr Asn Leu Gln Asn Gln Asn Glu Phe Ser Phe Thr Ala Ile 1315 1320 1325 | 4405 |

ctg aca gca cta gaa ttt tgg agt agg gtg aca ccc agc atc ctt cag 4453
 Leu Thr Ala Leu Glu Phe Trp Ser Arg Val Thr Pro Ser Ile Leu Gln
 1330 1335 1340

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 Ile Ser Leu Met Glu Ala Leu Gln Glu Cys Asn Ser Thr Ile Phe Val
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 aag ctg ata cct atg tgg ttg cca atg att cag tca aat atc aag cac 4597
 Lys Leu Ile Pro Met Trp Leu Pro Met Ile Gln Ser Asn Ile Lys His
 1375 1380 1385 1390

 tta tct gcg gga ctc cag ctt cgc ctc cag gct att cag aac cac gtg 4645
 Leu Ser Ala Gly Leu Gln Leu Arg Leu Gln Ala Ile Gln Asn His Val
 1395 1400 1405

 aac cac cac agc cta agg acg ctg ccg ggc tcg ggc cag agc agt gct 4693
 Asn His His Ser Leu Arg Thr Leu Pro Gly Ser Gly Gln Ser Ser Ala
 1410 1415 1420

 ggc ctg gca gcc ctc cga aag tgg ttg cag tgc act cag ttc aaa atg 4741
 Gly Leu Ala Ala Leu Arg Lys Trp Leu Gln Cys Thr Gln Phe Lys Met
 1425 1430 1435

 gcc cag gtg gag atc cag tcc tcg gaa gca gcc tct caa ttt tat cct 4789
 Ala Gln Val Glu Ile Gln Ser Ser Glu Ala Ala Ser Gln Phe Tyr Pro
 1440 1445 1450

 cta tga gtggactcct cggcgctcag tgtcaacact ctggtttagc aataatgggt 4845
 Leu *
 1455

 ttaaaaacaa acaatttgat ccaagcaggt tggggaacat attggtactg tacattctct 4905
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 tgctcgctt cccggcgcgg tcgcagccct cagccactt aggata atg gcg aca 175
 Met Ala Thr

| | |
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| gaa gtc tac gaa ttg tta gac agt cca gga aaa gtc ctc ctg cag tcc Glu Val Tyr Glu Leu Leu Asp Ser Pro Gly Lys Val Leu Leu Gln Ser 20 25 30 35 | 271 |
| aag gac cag att aca gca gga aat gca gct aga aaa aac cac ctg gaa Lys Asp Gln Ile Thr Ala Gly Asn Ala Ala Arg Lys Asn His Leu Glu 40 45 50 | 319 |
| gga aaa gct gca atc tca aat aaa atc acc agt tgt att ttt cag tta Gly Lys Ala Ala Ile Ser Asn Lys Ile Thr Ser Cys Ile Phe Gln Leu 55 60 65 | 367 |
| tta cag gaa gca ggt att aaa act gcc ttc acc aga aaa tgt ggg gag Leu Gln Glu Ala Gly Ile Lys Thr Ala Phe Thr Arg Lys Cys Gly Glu 70 75 80 | 415 |
| aca gct ttc att gca ccg cag tgt gaa atg att cca att gaa tgg gtt Thr Ala Phe Ile Ala Pro Gln Cys Glu Met Ile Pro Ile Glu Trp Val 85 90 95 | 463 |
| tgc aga aga ata gca act ggt tct ttt ctc aaa aga aat cct ggt gtc Cys Arg Arg Ile Ala Thr Gly Ser Phe Leu Lys Arg Asn Pro Gly Val 100 105 110 115 | 511 |
| aag gaa gga tat aag ttt tac cca cct aaa gtg gag ttg ttt ttc aag Lys Glu Gly Tyr Lys Phe Tyr Pro Pro Lys Val Glu Leu Phe Phe Lys 120 125 130 | 559 |
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| gca aaa ttt tgc ttt gct gga ctt ctt ata ggc cag act gaa gtg gat Ala Lys Phe Cys Phe Ala Gly Leu Leu Ile Gly Gln Thr Glu Val Asp 150 155 160 | 655 |
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 Ser Asp Leu Gly His Cys Glu Lys Ile Lys Lys Ala Cys Gly Asn Phe
 280 285 290

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 Gly Ile Pro Cys Glu Leu Arg Val Thr Ser Ala His Lys Gly Pro Asp
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 Glu Thr Leu Arg Ile Lys Ala Glu Tyr Glu Gly Asp Gly Ile Pro Thr
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 Val Phe Val Ala Val Ala Gly Arg Ser Asn Gly Leu Gly Pro Val Met
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 Ala Gln Ile Phe Gly Leu Ser Asn His Leu Val Trp Ser Lys Leu Arg
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 Ile Arg Glu Cys Asn Leu *
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| Gly Gly Arg Trp Thr Cys Gln Thr Ser Arg Arg Val Ser Ser Asp Pro | |
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| 135 140 145 | |
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| Ala Leu Glu Ser Ala Phe Ser Ser Tyr Ser Asp Leu Ser Glu Gly Glu | |
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| Gln Glu Ala Arg Phe Ala Ala Gly Val Ala Glu Gln Phe Ala Ile Ala | |
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| Glu Ala Lys Leu Arg Ala Trp Ser Ser Val Asp Gly Glu Asp Ser Thr | |
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| gat gac tcc tat gat gag gac ttt gct ggg gga atg gac aca gac atg | 859 |
| Asp Asp Ser Tyr Asp Glu Asp Phe Ala Gly Gly Met Asp Thr Asp Met | |
| 195 200 205 210 | |
| gct ggg cag ctg ccc ctg ggg ccg cac ctc cag gac ctg ttc acc ggc | 907 |
| Ala Gly Gln Leu Pro Leu Gly Pro His Leu Gln Asp Leu Phe Thr Gly | |
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 His Arg Phe Ser Arg Pro Val Arg Gln Gly Ser Val Glu Pro Glu Ser
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 Asp Cys Ser Gln Thr Val Ser Pro Asp Thr Leu Cys Ser Ser Leu Cys
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 Asn Ser Pro Leu Thr Glu Ser Cys Leu Ser Pro Ala Glu Glu Glu Pro
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 Ala Pro Cys Lys Asp Cys Gln Pro Leu Cys Pro Pro Leu Thr Gly Ser
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 Trp Glu Arg Gln Arg Gln Ala Ser Asp Leu Ala Ser Ser Gly Val Val
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 Ser Leu Asp Glu Asp Glu Ala Glu Pro Glu Glu Gln *
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| Met Ser Pro Gly Gly Lys Phe Asp Phe Asp Asp Gly Gly | | | | | | | | | | | | | | | | |
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| 1 | | | | 5 | | | | 10 | | | | | | | | |
| tgc | tac | gtg | ggg | ggc | tgg | gag | gcg | ggg | cgg | gca | cat | ggc | tac | ggc | gtg | 158 |
| Cys | Tyr | Val | Gly | Gly | Trp | Glu | Ala | Gly | Arg | Ala | His | Gly | Tyr | Gly | Val | |
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| Cys | Thr | Gly | Pro | Gly | Ala | Gln | Gly | Glu | Tyr | Ser | Gly | Cys | Trp | Ala | His | |
| 30 | | | | 35 | | | | 40 | | | | | | | | 45 |
| ggc | ttc | gag | tca | ctg | ggc | gtc | ttc | acg | ggg | ccc | ggc | gga | cac | agc | tac | 254 |
| Gly | Phe | Glu | Ser | Leu | Gly | Val | Phe | Thr | Gly | Pro | Gly | Gly | His | Ser | Tyr | |
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| cag | ggc | cac | tgg | cag | cag | ggc | aag | cgc | gaa | ggg | ctg | ggc | gtg | gag | cgc | 302 |
| Gln | Gly | His | Trp | Gln | Gln | Gly | Lys | Arg | Glu | Gly | Leu | Gly | Val | Glu | Arg | |
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| Lys | Ser | Arg | Trp | Thr | Tyr | Arg | Gly | Glu | Trp | Leu | Gly | Gly | Leu | Lys | Gly | |
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| cgc | agc | ggc | gtg | tgg | gaa | agc | gtg | tcc | ggc | ctg | cgc | tac | gcc | ggg | ctc | 398 |
| Arg | Ser | Gly | Val | Trp | Glu | Ser | Val | Ser | Gly | Leu | Arg | Tyr | Ala | Gly | Leu | |
| 95 | | | | 100 | | | | 105 | | | | | | | | |
| tgg | aag | gac | ggt | ttc | cag | gac | ggc | tac | ggc | act | gag | acc | tac | tcc | gac | 446 |
| Trp | Lys | Asp | Gly | Phe | Gln | Asp | Gly | Tyr | Gly | Thr | Glu | Thr | Tyr | Ser | Asp | |
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| gga | ggc | acc | tac | cag | ggc | cag | tgg | cag | gcc | ggg | aag | cgc | cac | ggc | tac | 494 |
| Gly | Gly | Thr | Tyr | Gln | Gly | Gln | Trp | Gln | Ala | Gly | Lys | Arg | His | Gly | Tyr | |
| 130 | | | | 135 | | | | 140 | | | | | | | | |
| ggg | gta | cgc | cag | agt | gtg | ccc | tac | cat | cag | gcg | gcg | ctg | ctg | cgc | tcg | 542 |
| Gly | Val | Arg | Gln | Ser | Val | Pro | Tyr | His | Gln | Ala | Ala | Leu | Leu | Arg | Ser | |
| 145 | | | | 150 | | | | 155 | | | | | | | | |
| ccc | cgc | cgc | acc | tcc | ctg | gat | tcc | ggc | cac | agc | gac | ccc | ccg | acg | cca | 590 |
| Pro | Arg | Arg | Thr | Ser | Leu | Asp | Ser | Gly | His | Ser | Asp | Pro | Pro | Thr | Pro | |
| 160 | | | | 165 | | | | 170 | | | | | | | | |
| ccc | ccg | ccc | ctg | ccc | ttg | ccg | ggc | gac | gag | gga | ggc | agc | ccc | gcc | tcg | 638 |
| Pro | Pro | Pro | Leu | Pro | Leu | Pro | Gly | Asp | Glu | Gly | Gly | Ser | Pro | Ala | Ser | |
| 175 | | | | 180 | | | | 185 | | | | | | | | |
| ggc | tcc | cgg | ggc | ggc | ttc | gtg | ctg | gcc | ggg | ccc | ggg | gac | gcc | gac | ggc | 686 |
| Gly | Ser | Arg | Gly | Gly | Phe | Val | Leu | Ala | Gly | Pro | Gly | Asp | Ala | Asp | Gly | |
| 190 | | | | 195 | | | | 200 | | | | | | | | 205 |
| gcg | tcg | tcc | cga | aag | cgc | act | ccg | gcg | gcc | ggc | gga | ttc | ttt | cgc | cgt | 734 |
| Ala | Ser | Ser | Arg | Lys | Arg | Thr | Pro | Ala | Ala | Gly | Gly | Phe | Phe | Arg | Arg | |
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| tcg | ctg | ctg | ctc | agc | ggg | ctc | cga | gcg | ggc | gga | cgt | cgc | agc | tcc | ctg | 782 |
| Ser | Leu | Leu | Leu | Ser | Gly | Leu | Arg | Ala | Gly | Gly | Arg | Arg | Ser | Ser | Leu | |
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| ggc | agc | aag | cga | ggc | tcc | ctg | cgc | agc | gag | gtg | agc | agc | gag | gtg | ggc | 830 |
| Gly | Ser | Lys | Arg | Gly | Ser | Leu | Arg | Ser | Glu | Val | Ser | Ser | Glu | Val | Gly | |
| 240 | | | | 245 | | | | 250 | | | | | | | | |
| agc | acc | gga | ccg | ccc | ggc | tcg | gag | gcc | agc | ggg | ccc | ccg | gcc | gca | gcg | 878 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Ser | Thr | Gly | Pro | Pro | Gly | Ser | Glu | Ala | Ser | Gly | Pro | Pro | Ala | Ala | Ala | | |
| 255 | | | | | | 260 | | | | | 265 | | | | | | |
| ccg | ccc | gcc | ctc | atc | gag | ggc | tcg | gcc | aca | gag | gtg | tac | gcg | ggc | gag | 926 | |
| Pro | Pro | Ala | Leu | Ile | Glu | Gly | Ser | Ala | Thr | Glu | Val | Tyr | Ala | Gly | Glu | | |
| 270 | | | | | 275 | | | | | 280 | | | | | 285 | | |
| tgg | cgc | gca | gat | cgg | cgc | agc | ggc | ttc | ggc | gtc | agc | cag | cgc | tcc | aac | 974 | |
| Trp | Arg | Ala | Asp | Arg | Arg | Ser | Gly | Phe | Gly | Val | Ser | Gln | Arg | Ser | Asn | | |
| | | | | 290 | | | | | 295 | | | | | 300 | | | |
| ggg | ctg | cgc | tac | gag | ggc | gag | tgg | ctg | ggc | aac | cgg | cgg | cac | ggc | tac | 1022 | |
| Gly | Leu | Arg | Tyr | Glu | Gly | Glu | Trp | Leu | Gly | Asn | Arg | Arg | His | Gly | Tyr | | |
| | | | 305 | | | | | 310 | | | | | 315 | | | | |
| ggg | cgc | acc | acc | cgc | ccc | gac | ggc | tcc | cgc | gag | gag | ggc | aag | tac | aag | 1070 | |
| Gly | Arg | Thr | Thr | Arg | Pro | Asp | Gly | Ser | Arg | Glu | Glu | Gly | Lys | Tyr | Lys | | |
| | | 320 | | | | | 325 | | | | | 330 | | | | | |
| cgc | aac | cgg | ctg | gtg | cac | ggc | ggg | cgc | gtc | cgc | agt | ctc | ctg | cct | ctg | 1118 | |
| Arg | Asn | Arg | Leu | Val | His | Gly | Gly | Arg | Val | Arg | Ser | Leu | Leu | Pro | Leu | | |
| | 335 | | | | | 340 | | | | | 345 | | | | | | |
| gcc | ctt | cgg | cgg | ggc | aag | gtt | aag | gag | aag | gtg | gac | agg | gct | gtc | gag | 1166 | |
| Ala | Leu | Arg | Arg | Gly | Lys | Val | Lys | Glu | Lys | Val | Asp | Arg | Ala | Val | Glu | | |
| 350 | | | | | 355 | | | | | 360 | | | | | 365 | | |
| ggc | gcc | cgt | cga | gcc | gtg | agt | gct | gcc | cgt | cag | cgc | cag | gag | atc | gcc | 1214 | |
| Gly | Ala | Arg | Arg | Ala | Val | Ser | Ala | Ala | Arg | Gln | Arg | Gln | Glu | Ile | Ala | | |
| | | | | 370 | | | | | 375 | | | | | 380 | | | |
| gct | gcc | agg | gca | gca | gac | gcc | ctc | cta | aag | gca | gtg | gca | gcc | agc | agt | 1262 | |
| Ala | Ala | Arg | Ala | Ala | Asp | Ala | Leu | Leu | Lys | Ala | Val | Ala | Ala | Ser | Ser | | |
| | | | 385 | | | | | 390 | | | | | 395 | | | | |
| gtc | gct | gag | aag | gcc | gtg | gag | gca | gct | cga | atg | gcc | aaa | ctg | ata | gcc | 1310 | |
| Val | Ala | Glu | Lys | Ala | Val | Glu | Ala | Ala | Arg | Met | Ala | Lys | Leu | Ile | Ala | | |
| | | 400 | | | | | 405 | | | | | 410 | | | | | |
| cag | gac | ctg | cag | ccc | atg | cta | gag | gcc | cca | ggc | cgc | aga | ccc | agg | cag | 1358 | |
| Gln | Asp | Leu | Gln | Pro | Met | Leu | Glu | Ala | Pro | Gly | Arg | Arg | Pro | Arg | Gln | | |
| | 415 | | | | | 420 | | | | | 425 | | | | | | |
| gac | tca | gaa | ggt | tcc | gac | acg | gag | ccc | ctg | gat | gag | gac | agc | cct | ggg | 1406 | |
| Asp | Ser | Glu | Gly | Ser | Asp | Thr | Glu | Pro | Leu | Asp | Glu | Asp | Ser | Pro | Gly | | |
| 430 | | | | | 435 | | | | | 440 | | | | | 445 | | |
| gta | tat | gag | aac | gga | ctg | acc | ccc | tca | gag | gga | tcc | cct | gaa | ctg | ccc | 1454 | |
| Val | Tyr | Glu | Asn | Gly | Leu | Thr | Pro | Ser | Glu | Gly | Ser | Pro | Glu | Leu | Pro | | |
| | | | | 450 | | | | | 455 | | | | | 460 | | | |
| agc | agt | cct | gcc | tcc | tcc | cgc | caa | ccc | tgg | cga | ccc | cct | gcc | tgc | cgg | 1502 | |
| Ser | Ser | Pro | Ala | Ser | Ser | Arg | Gln | Pro | Trp | Arg | Pro | Pro | Ala | Cys | Arg | | |
| | | | 465 | | | | | 470 | | | | | 475 | | | | |
| agc | cca | ctg | cct | cct | gga | ggg | gac | cag | ggt | ccc | ttc | tcc | agc | ccc | aaa | 1550 | |
| Ser | Pro | Leu | Pro | Pro | Gly | Gly | Asp | Gln | Gly | Pro | Phe | Ser | Ser | Pro | Lys | | |
| | | 480 | | | | | 485 | | | | | 490 | | | | | |
| gct | tgg | cct | gag | gag | tgg | ggg | ggg | gca | ggc | gca | cag | gca | gag | gaa | cta | 1598 | |
| Ala | Trp | Pro | Glu | Glu | Trp | Gly | Gly | Ala | Gly | Ala | Gln | Ala | Glu | Glu | Leu | | |
| | 495 | | | | | 500 | | | | | | 505 | | | | | |
| gct | ggc | tat | gag | gct | gag | gat | gag | gct | ggg | atg | caa | ggg | cca | ggg | ccc | 1646 | |

2190

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 Thr Ser Ser Asp Lys Asp Phe Arg Phe Met Ala Thr Ser Asp Leu Met
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 Val Gln Asn Leu Ala Val Lys Trp Leu Gly Val Pro Leu Gly Ala Phe
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 His Ala Ser Leu Leu His Cys Leu Leu Pro Gln Leu Ser Ser Pro Arg
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 Leu Ala Val Arg Lys Arg Ala Val Gly Ala Leu Gly His Leu Ala Ala
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 Leu Ile Gln Cys Leu Gly Ser Val Gly Arg Gln Ala Gly His Arg Leu
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 Gly Ala His Leu Asp Arg Leu Val Pro Leu Val Glu Asp Phe Cys Asn
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 Leu Asp Asp Asp Glu Leu Arg Glu Ser Cys Leu Gln Ala Phe Glu Ala

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| ttc ttg agg aag tgc ccc aag gaa atg ggt cct cac gtg ccc aac gtg | | | | 682 |
| Phe Leu Arg Lys Cys Pro Lys Glu Met Gly Pro His Val Pro Asn Val | | | | |
| | 195 | 200 | 205 | |
| acc agc ctc tgc ctc caa tac ata aaa cac gac ccc aac tac aac tac | | | | 730 |
| Thr Ser Leu Cys Leu Gln Tyr Ile Lys His Asp Pro Asn Tyr Asn Tyr | | | | |
| | 210 | 215 | 220 | |
| gac agt gat gag gat gag gag cag atg gag aca gag gat agt gaa ttc | | | | 778 |
| Asp Ser Asp Glu Asp Glu Glu Gln Met Glu Thr Glu Asp Ser Glu Phe | | | | |
| | 225 | 230 | 235 | |
| agt gag caa gag agt gaa gac gag tac agc gat gac gat gac atg agc | | | | 826 |
| Ser Glu Gln Glu Ser Glu Asp Glu Tyr Ser Asp Asp Asp Asp Met Ser | | | | |
| | 240 | 245 | 250 | 255 |
| tgg aag gtg cgc cgg gca gct gcc aag tgc atc gca gcc ttg atc agc | | | | 874 |
| Trp Lys Val Arg Arg Ala Ala Ala Lys Cys Ile Ala Ala Leu Ile Ser | | | | |
| | 260 | 265 | 270 | |
| tcg cgg cct gac ctg ctg ccc gat ttc cac tgc acc ctg gca cct gtg | | | | 922 |
| Ser Arg Pro Asp Leu Leu Pro Asp Phe His Cys Thr Leu Ala Pro Val | | | | |
| | 275 | 280 | 285 | |
| ctc atc cgc cgc ttc aaa gaa cgc gag gag aac gtc aag gct gac gtc | | | | 970 |
| Leu Ile Arg Arg Phe Lys Glu Arg Glu Glu Asn Val Lys Ala Asp Val | | | | |
| | 290 | 295 | 300 | |
| ttc act gct tac atc gtg ctg ctg cgg caa aca cgg ccc ccg aag gga | | | | 1018 |
| Phe Thr Ala Tyr Ile Val Leu Leu Arg Gln Thr Arg Pro Pro Lys Gly | | | | |
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| tgg ctg gag gcc atg gag gaa ccc acc cag acc ggc agc aac ctc cat | | | | 1066 |
| Trp Leu Glu Ala Met Glu Glu Pro Thr Gln Thr Gly Ser Asn Leu His | | | | |
| | 320 | 325 | 330 | 335 |
| atg cta cgt gga cag gtg ccc ctt gtg gtc aag gcc ctg cag cgg cag | | | | 1114 |
| Met Leu Arg Gly Gln Val Pro Leu Val Val Lys Ala Leu Gln Arg Gln | | | | |
| | 340 | 345 | 350 | |
| ctt aaa gat cgg agc gtc aga gcc cgc cag gga tgc ttc agc ctc ctc | | | | 1162 |
| Leu Lys Asp Arg Ser Val Arg Ala Arg Gln Gly Cys Phe Ser Leu Leu | | | | |
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| acc gag ctg gcg ggt gtc ctc cca ggc agc ctg gcc gag cat atg cct | | | | 1210 |
| Thr Glu Leu Ala Gly Val Leu Pro Gly Ser Leu Ala Glu His Met Pro | | | | |
| | 370 | 375 | 380 | |
| gtg ctg gta tca ggc atc atc ttc tcg ctg gcc gac cgc tcc agc tcc | | | | 1258 |
| Val Leu Val Ser Gly Ile Ile Phe Ser Leu Ala Asp Arg Ser Ser Ser | | | | |
| | 385 | 390 | 395 | |
| tcc acc atc cgg atg gat gcc ctg gcc ttc ttg cag ggg ctg ctg ggc | | | | 1306 |
| Ser Thr Ile Arg Met Asp Ala Leu Ala Phe Leu Gln Gly Leu Leu Gly | | | | |
| | 400 | 405 | 410 | 415 |
| acc gaa cca gct gag gcc ttc cac cca cac ttg cct atc ctc ctg cca | | | | 1354 |
| Thr Glu Pro Ala Glu Ala Phe His Pro His Leu Pro Ile Leu Leu Pro | | | | |
| | 420 | 425 | 430 | |
| cct gtg atg gcc tgt gtg gct gac tct ttc tac aag att gca gcc gag | | | | 1402 |
| Pro Val Met Ala Cys Val Ala Asp Ser Phe Tyr Lys Ile Ala Ala Glu | | | | |

| 435 | | | | | | | | | | 440 | | | | | 445 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|--|
| gcc | ctg | gtg | gtg | ctg | cag | gag | ctg | gtg | cgg | gcc | ctg | tgg | ccg | ctg | cac | 1450 | | | | |
| Ala | Leu | Val | Val | Leu | Gln | Glu | Leu | Val | Arg | Ala | Leu | Trp | Pro | Leu | His | | | | | |
| 450 | | | | | 455 | | | | | 460 | | | | | | | | | | |
| agg | cct | cgg | atg | ctg | gat | cct | gag | cca | tat | gtt | gga | gag | atg | tct | gct | 1498 | | | | |
| Arg | Pro | Arg | Met | Leu | Asp | Pro | Glu | Pro | Tyr | Val | Gly | Glu | Met | Ser | Ala | | | | | |
| 465 | | | | | 470 | | | | | 475 | | | | | | | | | | |
| gtc | acc | ctg | gcg | cga | ctt | cgt | gcc | act | gac | ctg | gac | cag | gag | gtg | aag | 1546 | | | | |
| Val | Thr | Leu | Ala | Arg | Leu | Arg | Ala | Thr | Asp | Leu | Asp | Gln | Glu | Val | Lys | | | | | |
| 480 | | | | | 485 | | | | | 490 | | | | | 495 | | | | | |
| gag | cgg | gcc | att | tcc | tgc | atg | ggc | cac | ctt | gta | ggc | cac | ctg | ggt | gac | 1594 | | | | |
| Glu | Arg | Ala | Ile | Ser | Cys | Met | Gly | His | Leu | Val | Gly | His | Leu | Gly | Asp | | | | | |
| 500 | | | | | 505 | | | | | 510 | | | | | | | | | | |
| cgg | ctt | ggg | gat | gac | ctg | gag | ccc | acg | tta | ctg | ctc | ctc | ctg | gac | cgc | 1642 | | | | |
| Arg | Leu | Gly | Asp | Asp | Leu | Glu | Pro | Thr | Leu | Leu | Leu | Leu | Leu | Asp | Arg | | | | | |
| 515 | | | | | 520 | | | | | 525 | | | | | | | | | | |
| ctg | cgg | aat | gag | atc | acc | cgg | ctg | ccc | gcc | atc | aag | gcg | ctt | acg | ctg | 1690 | | | | |
| Leu | Arg | Asn | Glu | Ile | Thr | Arg | Leu | Pro | Ala | Ile | Lys | Ala | Leu | Thr | Leu | | | | | |
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| gtg | gcc | gta | tcc | cca | cta | cag | ctt | gac | cta | cag | ccc | atc | ctg | gcc | gag | 1738 | | | | |
| Val | Ala | Val | Ser | Pro | Leu | Gln | Leu | Asp | Leu | Gln | Pro | Ile | Leu | Ala | Glu | | | | | |
| 545 | | | | | 550 | | | | | 555 | | | | | | | | | | |
| gca | ctg | cac | att | ctg | gcc | tca | ttc | ctg | cgg | aag | aac | cag | cgg | gct | ttg | 1786 | | | | |
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| Arg | Leu | Ala | Thr | Leu | Ala | Ala | Leu | Asp | Ala | Leu | Ala | Gln | Ser | Gln | Gly | | | | | |
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| ctc | agc | ctc | cca | ccg | tct | gcc | gtg | cag | gcc | gtg | ctg | gct | gag | ctg | cct | 1882 | | | | |
| Leu | Ser | Leu | Pro | Pro | Ser | Ala | Val | Gln | Ala | Val | Leu | Ala | Glu | Leu | Pro | | | | | |
| 595 | | | | | 600 | | | | | 605 | | | | | | | | | | |
| gcc | ctg | gtc | aac | gag | agc | gac | atg | cat | gtg | gcc | cag | ctg | gct | gtg | gac | 1930 | | | | |
| Ala | Leu | Val | Asn | Glu | Ser | Asp | Met | His | Val | Ala | Gln | Leu | Ala | Val | Asp | | | | | |
| 610 | | | | | 615 | | | | | 620 | | | | | | | | | | |
| ttc | ctt | gcc | aca | gtg | acc | cag | gcc | cag | cca | gcc | tct | ttg | gtg | gag | gtc | 1978 | | | | |
| Phe | Leu | Ala | Thr | Val | Thr | Gln | Ala | Gln | Pro | Ala | Ser | Leu | Val | Glu | Val | | | | | |
| 625 | | | | | 630 | | | | | 635 | | | | | | | | | | |
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| Ser | Gly | Pro | Val | Leu | Ser | Glu | Leu | Leu | Arg | Leu | Leu | Arg | Ser | Pro | Leu | | | | | |
| 640 | | | | | 645 | | | | | 650 | | | | | 655 | | | | | |
| ttg | cca | gcc | gga | gtt | ctg | gca | gct | gct | gaa | ggc | ttc | ctg | cag | gcc | ctg | 2074 | | | | |
| Leu | Pro | Ala | Gly | Val | Leu | Ala | Ala | Ala | Glu | Gly | Phe | Leu | Gln | Ala | Leu | | | | | |
| 660 | | | | | 665 | | | | | 670 | | | | | | | | | | |
| gta | ggg | acc | cgt | ccc | ccg | tgt | gtg | gac | tat | gcc | aaa | ctc | atc | agc | ctg | 2122 | | | | |
| Val | Gly | Thr | Arg | Pro | Pro | Cys | Val | Asp | Tyr | Ala | Lys | Leu | Ile | Ser | Leu | | | | | |
| 675 | | | | | 680 | | | | | 685 | | | | | | | | | | |
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| aca aag atc cgg cgg gac ctc atc cga gag gtg gag atg ggg ccc ttt Thr Lys Ile Arg Arg Asp Leu Ile Arg Glu Val Glu Met Gly Pro Phe 945 950 955 | | | 2938 |

| 945 | 950 | 955 | |
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| Lys His Thr Val Asp Asp Gly Leu Asp Val Arg Lys Ala Ala Phe Glu | | | |
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| Cys Met Tyr Ser Leu Leu Glu Ser Cys Leu Gly Gln Leu Asp Ile Cys | | | |
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| Glu Phe Leu Asn His Val Glu Asp Gly Leu Lys Asp His Tyr Asp Ile | | | |
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| cgg atg ctg acc ttc atc atg gtt gcc cgg ctg gcc acc ctg tgt cct | | | 3130 |
| Arg Met Leu Thr Phe Ile Met Val Ala Arg Leu Ala Thr Leu Cys Pro | | | |
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| Ala Pro Val Leu Gln Arg Val Asp Arg Leu Ile Glu Pro Leu Arg Ala | | | |
| | 1025 | 1030 | 1035 |
| acc tgc act gcc aag gtc aaa gct ggt tct gtg aag cag gag ttt gaa | | | 3226 |
| Thr Cys Thr Ala Lys Val Lys Ala Gly Ser Val Lys Gln Glu Phe Glu | | | |
| 1040 | 1045 | 1050 | 1055 |
| aag caa gat gaa ctg aag cgc tct gca atg agg gca gtg gct gcc ctg | | | 3274 |
| Lys Gln Asp Glu Leu Lys Arg Ser Ala Met Arg Ala Val Ala Ala Leu | | | |
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| Leu Thr Ile Pro Glu Val Gly Lys Ser Pro Ile Met Ala Asp Phe Ser | | | |
| | 1075 | 1080 | 1085 |
| tcc caa atc aga tcc aac cct gaa ctt gct gcc ctc ttt gaa agc atc | | | 3370 |
| Ser Gln Ile Arg Ser Asn Pro Glu Leu Ala Ala Leu Phe Glu Ser Ile | | | |
| | 1090 | 1095 | 1100 |
| cag aag gat tcc act tca gcc ccc agc aca gac tca atg gag ctc agc | | | 3418 |
| Gln Lys Asp Ser Thr Ser Ala Pro Ser Thr Asp Ser Met Glu Leu Ser | | | |
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 Met Ser Thr Ala Ala Phe His Ile Ser Ser Leu Leu Glu Lys Met
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 Thr Ser Ser Asp Lys Asp Phe Arg Phe Met Ala Thr Ser Asp Leu Met
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 Ser Glu Leu Gln Lys Asp Ser Ile Gln Leu Asp Glu Asp Ser Glu Arg
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 Val Gln Asn Leu Ala Val Lys Trp Leu Gly Val Pro Leu Gly Ala Phe
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 His Ala Ser Leu Leu His Cys Leu Leu Pro Gln Leu Ser Ser Pro Arg
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 Leu Ala Val Arg Lys Arg Ala Val Gly Ala Leu Gly His Leu Ala Ala
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 gcc tgc agc acc gac ctc ttc gtc gag ctc gct gac cac cta ctg gac 442
 Ala Cys Ser Thr Asp Leu Phe Val Glu Leu Ala Asp His Leu Leu Asp
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 Arg Leu Pro Gly Pro Arg Val Pro Thr Ser Pro Thr Ala Ile Arg Thr
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 Leu Ile Gln Cys Leu Gly Ser Val Gly Arg Gln Ala Gly His Arg Leu
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 Gly Ala His Leu Asp Arg Leu Val Pro Leu Val Glu Asp Phe Cys Asn
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| 180 185 190 | |
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| Phe Leu Arg Lys Cys Pro Lys Glu Met Gly Pro His Val Pro Asn Val | |
| 195 200 205 | |
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| Thr Ser Leu Cys Leu Gln Tyr Ile Lys His Asp Pro Asn Tyr Asn Tyr | |
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| Trp Lys Val Arg Arg Ala Ala Ala Lys Cys Ile Ala Ala Leu Ile Ser | |
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| 275 280 285 | |
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| Leu Ile Arg Arg Phe Lys Glu Arg Glu Glu Asn Val Lys Ala Asp Val | |
| 290 295 300 | |
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| Thr Glu Leu Ala Gly Val Leu Pro Gly Ser Leu Ala Glu His Met Pro | |
| 370 375 380 | |
| gtg ctg gta tca ggc atc atc ttc tgc ctg gcc gac cgc tcc agc tcc | 1258 |
| Val Leu Val Ser Gly Ile Ile Phe Ser Leu Ala Asp Arg Ser Ser Ser | |
| 385 390 395 | |
| tcc acc atc cgg atg gat gcc ctg gcc ttc ttg cag ggg ctg ctg ggc | 1306 |
| Ser Thr Ile Arg Met Asp Ala Leu Ala Phe Leu Gln Gly Leu Leu Gly | |
| 400 405 410 415 | |
| acc gaa cca gct gag gcc ttc cac cca cac ttg cct atc ctc ctg cca | 1354 |
| Thr Glu Pro Ala Glu Ala Phe His Pro His Leu Pro Ile Leu Leu Pro | |
| 420 425 430 | |

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| ctc agc ctc cca ccg tct gcc gtg cag gcc gtg ctg gct gag ctg cct Leu Ser Leu Pro Pro Ser Ala Val Gln Ala Val Leu Ala Glu Leu Pro 595 600 605 | 1882 |
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| cga gag gtg gag atg ggg ccc ttt aaa cat aca gtg gac gat ggg ctg Arg Glu Val Glu Met Gly Pro Phe Lys His Thr Val Asp Asp Gly Leu 980 985 990 | 3034 |
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| ctt gct gcc ctc ttt gaa agc atc cag aag gat tcc act tca gcc ccc Leu Ala Ala Leu Phe Glu Ser Ile Gln Lys Asp Ser Thr Ser Ala Pro 1120 1125 1130 1135 | 3466 |
| agc aca gac tca atg gag ctc agc tag tcccc tcagcaccaa ggtgggcct Ser Thr Asp Ser Met Glu Leu Ser * | 3518 |
| cgcttaagag aaaggagccc acccaagtcc gaggcctccc catcccacca tcgcaggtct | 3578 |
| ctacttttgc ccttccacca tctcactggg ggccctgtcg ctcttggtca gggcttacag | 3638 |
| tgccttctcc agggacccaa ctcaaaggcc cccagcccaa gctgtgaggc tgccaacagt | 3698 |
| tgggcccctt ccttaactca ggacagtcac ccaaagaaat agggtgagga agttttccag | 3758 |
| tgacttcaca ctgtaccctt ccatagtctg tctggttcct tcagagggtg tctctgcctc | 3818 |
| acaaactagt agtattttaga aataggctgt gctgtcagct gtaaaagatc aggaggcagc | 3878 |

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ctggaagagc aacagggaag acatccatca tttgctccaa agtgtgcaag tcaaatectg 180
gggagaatc   atg ata acc ctg atc act gag cag cta cag aag cag act 228
             Met Ile Thr Leu Ile Thr Glu Gln Leu Gln Lys Gln Thr
             1             5             10

ctg gat gag ctg aaa tgc aca cgc ttc agc atc agt ctg cct ttg cct 276
Leu Asp Glu Leu Lys Cys Thr Arg Phe Ser Ile Ser Leu Pro Leu Pro
15             20             25

gat cat gca gac atc tcc aac tgt ggg aac tct ttc cag ctt gtg tct 324
Asp His Ala Asp Ile Ser Asn Cys Gly Asn Ser Phe Gln Leu Val Ser
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gaa ggt gct tcc tgg agg ggc ctg ccc cac tgt tcc tgt gct gag ttc 372
Glu Gly Ala Ser Trp Arg Gly Leu Pro His Cys Ser Cys Ala Glu Phe
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cag gac agc ctc aac ttc agc tac cat ccc tca ggc ctg agc ctg cac 420
Gln Asp Ser Leu Asn Phe Ser Tyr His Pro Ser Gly Leu Ser Leu His
65             70             75

ctc aga cca ccc agt cgg gga aac tcc ccc aag gag cag ccc ttc tcc 468
Leu Arg Pro Pro Ser Arg Gly Asn Ser Pro Lys Glu Gln Pro Phe Ser
80             85             90

caa gtc cta aga cct gag ccc cca gat cca gag aag ctt cct gtg ccc 516
Gln Val Leu Arg Pro Glu Pro Pro Asp Pro Glu Lys Leu Pro Val Pro
95             100             105

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| cct gcc cct cca tcc aag agg cac tgc cgc tca ctc tca gtg ccc gtg | 564 |
| Pro Ala Pro Pro Ser Lys Arg His Cys Arg Ser Leu Ser Val Pro Val | |
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| gac ctg tct cgc tgg cag ccg gtg tgg cgg ccc gcc ccc tcc aag ctg | 612 |
| Asp Leu Ser Arg Trp Gln Pro Val Trp Arg Pro Ala Pro Ser Lys Leu | |
| 130 135 140 | |
| tgg act ccc ata aag cac cgg ggc agt ggt gga ggg ggt ggg ccg cag | 660 |
| Trp Thr Pro Ile Lys His Arg Gly Ser Gly Gly Gly Gly Pro Gln | |
| 145 150 155 | |
| gtg cct cac cag agc ccc cca aag cgg gtc tcc agc ctc agg ttc ctc | 708 |
| Val Pro His Gln Ser Pro Pro Lys Arg Val Ser Ser Leu Arg Phe Leu | |
| 160 165 170 | |
| caa gct ccc agt gcc tct tct caa tgt gcc cca gct cac aga ccc tac | 756 |
| Gln Ala Pro Ser Ala Ser Ser Gln Cys Ala Pro Ala His Arg Pro Tyr | |
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| agc cct cct ttc ttc agc ctg gcc ctg gcc caa gat tcc tct cga ccc | 804 |
| Ser Pro Pro Phe Phe Ser Leu Ala Leu Ala Gln Asp Ser Ser Arg Pro | |
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| tgc gcc gcc tcc cct caa agt ggc tcc tgg gag agt gat gct gag tcc | 852 |
| Cys Ala Ala Ser Pro Gln Ser Gly Ser Trp Glu Ser Asp Ala Glu Ser | |
| 210 215 220 | |
| ttg tca cct tgc cca cct cag cgc cgc ttc tcc ctg tca ccc agt ctg | 900 |
| Leu Ser Pro Cys Pro Pro Gln Arg Arg Phe Ser Leu Ser Pro Ser Leu | |
| 225 230 235 | |
| ggc ccg cag gca agc cgc ttc ttg ccc tct gcc cgg agc tct ccc gca | 948 |
| Gly Pro Gln Ala Ser Arg Phe Leu Pro Ser Ala Arg Ser Ser Pro Ala | |
| 240 245 250 | |
| tcc tcc cca gag ctg ccc tgg cga cct cga ggt ctc cgc aac ctt ccc | 996 |
| Ser Ser Pro Glu Leu Pro Trp Arg Pro Arg Gly Leu Arg Asn Leu Pro | |
| 255 260 265 | |
| cga agc cgc tca cag cct tgt gat ctg gat gcc cgc aaa act ggg gtc | 1044 |
| Arg Ser Arg Ser Gln Pro Cys Asp Leu Asp Ala Arg Lys Thr Gly Val | |
| 270 275 280 285 | |
| aag cgg cgc cac gag gaa gac ccc cgg cgt ctg cgg cct tcg ttg gac | 1092 |
| Lys Arg Arg His Glu Glu Asp Pro Arg Arg Leu Arg Pro Ser Leu Asp | |
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| ttt gac aag atg aat cag aaa cca tac tca gga ggt ctt tgt ctc caa | 1140 |
| Phe Asp Lys Met Asn Gln Lys Pro Tyr Ser Gly Gly Leu Cys Leu Gln | |
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| gaa aca gcc cgg gaa ggc agc agc atc tct cca cca tgg ttc atg gcc | 1188 |
| Glu Thr Ala Arg Glu Gly Ser Ser Ile Ser Pro Pro Trp Phe Met Ala | |
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| tgt agc ccc cca ccc ctc tct gct tcc tgc agc ccc act ggg ggt tcc | 1236 |
| Cys Ser Pro Pro Pro Leu Ser Ala Ser Cys Ser Pro Thr Gly Gly Ser | |
| 335 340 345 | |
| tcc cag gtg ctg agt gaa agc gaa gag gag gag gag ggg gct gtg cgg | 1284 |
| Ser Gln Val Leu Ser Glu Ser Glu Glu Glu Glu Glu Gly Ala Val Arg | |
| 350 355 360 365 | |

tgg ggt cgg cag gcg ctg agc aag cgg aca ctg tgc cag cgg gac ttt 1332
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 Met Glu Pro Asp Ser Val Ile Glu Asp Lys Thr
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atc gag ctc atg tgt tct gtg cca agg tct ttg tgg cta ggc tgc gcc 220
 Ile Glu Leu Met Cys Ser Val Pro Arg Ser Leu Trp Leu Gly Cys Ala
 15 20 25

aac ctg gta gag agc atg tgc gca ctg agt tgc ctg cag agc atg ccc 268
 Asn Leu Val Glu Ser Met Cys Ala Leu Ser Cys Leu Gln Ser Met Pro
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 Ser Val Arg Cys Leu Gln Ile Ser Asn Gly Thr Ser Ser Val Ile Val
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 Ser Arg Lys Arg Pro Ser Glu Gly Asn Tyr Gln Lys Glu Lys Asp Leu
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tgt att aaa tat ttt gac cag tgg tct gaa tca gat caa gtg gaa ttt 412
 Cys Ile Lys Tyr Phe Asp Gln Trp Ser Glu Ser Asp Gln Val Glu Phe
 80 85 90

gtg gaa cat ctt att tca cga atg tgt cat tat cag cat gga cat att 460
 Val Glu His Leu Ile Ser Arg Met Cys His Tyr Gln His Gly His Ile
 95 100 105

aac tct tac ctg aag ccc atg ttg cag cgg gac ttt att acc gct tta 508
 Asn Ser Tyr Leu Lys Pro Met Leu Gln Arg Asp Phe Ile Thr Ala Leu
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cca gag caa ggc tta gat cac ata gca gaa aac att ctt tcg tac ctg 556
 Pro Glu Gln Gly Leu Asp His Ile Ala Glu Asn Ile Leu Ser Tyr Leu
 125 130 135

gat gcc agg tct ctg tgt gca gca gag ctg gta tgt aaa gaa tgg cag 604

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| Asp | Ala | Arg | Ser | Leu | Cys | Ala | Ala | Glu | Leu | Val | Cys | Lys | Glu | Trp | Gln | |
| 140 | | | | | 145 | | | | | 150 | | | | | 155 | |
| cga | gtg | atc | tca | gaa | gga | atg | ctt | tgg | aag | aag | ctg | att | gaa | cga | atg | 652 |
| Arg | Val | Ile | Ser | Glu | Gly | Met | Leu | Trp | Lys | Lys | Leu | Ile | Glu | Arg | Met | |
| | | | | 160 | | | | | 165 | | | | | 170 | | |
| gta | cgc | act | gat | ccc | cta | tgg | aaa | gga | ctt | tca | gaa | aga | aga | ggg | tgg | 700 |
| Val | Arg | Thr | Asp | Pro | Leu | Trp | Lys | Gly | Leu | Ser | Glu | Arg | Arg | Gly | Trp | |
| | | | 175 | | | | | 180 | | | | | 185 | | | |
| gat | cag | tac | ctg | ttt | aaa | aac | aga | ccc | aca | gat | ggc | cct | cca | aat | tca | 748 |
| Asp | Gln | Tyr | Leu | Phe | Lys | Asn | Arg | Pro | Thr | Asp | Gly | Pro | Pro | Asn | Ser | |
| | | 190 | | | | | 195 | | | | | 200 | | | | |
| ttt | tat | agg | tca | tta | tac | cca | aag | att | atc | cag | gat | ata | gag | act | ata | 796 |
| Phe | Tyr | Arg | Ser | Leu | Tyr | Pro | Lys | Ile | Ile | Gln | Asp | Ile | Glu | Thr | Ile | |
| | 205 | | | | | 210 | | | | | 215 | | | | | |
| gaa | tct | aac | tgg | cgg | tgt | gga | cga | cac | aac | ttg | cag | agg | att | cag | tgc | 844 |
| Glu | Ser | Asn | Trp | Arg | Cys | Gly | Arg | His | Asn | Leu | Gln | Arg | Ile | Gln | Cys | |
| 220 | | | | | 225 | | | | | 230 | | | | 235 | | |
| cgc | tct | gaa | aat | agt | aaa | ggt | gtc | tac | tgt | tta | cag | tac | gat | gat | gaa | 892 |
| Arg | Ser | Glu | Asn | Ser | Lys | Gly | Val | Tyr | Cys | Leu | Gln | Tyr | Asp | Asp | Glu | |
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| aaa | att | atc | agt | ggc | cta | cga | gat | aat | tct | att | aag | ata | tgg | gat | aaa | 940 |
| Lys | Ile | Ile | Ser | Gly | Leu | Arg | Asp | Asn | Ser | Ile | Lys | Ile | Trp | Asp | Lys | |
| | | | 255 | | | | | 260 | | | | | 265 | | | |
| acc | agc | ctg | gaa | tgt | ttg | aaa | gtg | tta | aca | gga | cac | aca | ggc | tct | gtc | 988 |
| Thr | Ser | Leu | Glu | Cys | Leu | Lys | Val | Leu | Thr | Gly | His | Thr | Gly | Ser | Val | |
| | | 270 | | | | | 275 | | | | | 280 | | | | |
| ctc | tgt | ctg | cag | tat | gat | gag | cgt | gtc | att | gta | act | ggc | tct | tca | gat | 1036 |
| Leu | Cys | Leu | Gln | Tyr | Asp | Glu | Arg | Val | Ile | Val | Thr | Gly | Ser | Ser | Asp | |
| | 285 | | | | | 290 | | | | | 295 | | | | | |
| tct | acg | gtg | aga | gtg | tgg | gat | gtg | aac | acg | ggt | gaa | gtt | ctt | aac | aca | 1084 |
| Ser | Thr | Val | Arg | Val | Trp | Asp | Val | Asn | Thr | Gly | Glu | Val | Leu | Asn | Thr | |
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| ttg | atc | cac | cac | aat | gag | gct | gta | ttg | cac | tta | cgc | ttc | agc | aat | gga | 1132 |
| Leu | Ile | His | His | Asn | Glu | Ala | Val | Leu | His | Leu | Arg | Phe | Ser | Asn | Gly | |
| | | | | 320 | | | | | 325 | | | | | 330 | | |
| ctg | atg | gtg | acc | tgt | tcc | aag | gac | cgc | tcc | att | gct | gtg | tgg | gac | atg | 1180 |
| Leu | Met | Val | Thr | Cys | Ser | Lys | Asp | Arg | Ser | Ile | Ala | Val | Trp | Asp | Met | |
| | | | 335 | | | | | 340 | | | | | 345 | | | |
| gct | tct | gcg | acc | gac | atc | act | tta | cgc | cgt | gtc | ctg | gtt | ggc | cac | cgg | 1228 |
| Ala | Ser | Ala | Thr | Asp | Ile | Thr | Leu | Arg | Arg | Val | Leu | Val | Gly | His | Arg | |
| | | 350 | | | | | 355 | | | | 360 | | | | | |
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| Ala | Ala | Val | Asn | Val | Val | Asp | Phe | Asp | Asp | Lys | Tyr | Ile | Val | Ser | Ala | |
| | | 365 | | | | 370 | | | | | 375 | | | | | |
| tct | ggt | gac | agg | acc | atc | aaa | gtc | tgg | agc | acg | agc | acc | tgt | gaa | ttt | 1324 |
| Ser | Gly | Asp | Arg | Thr | Ile | Lys | Val | Trp | Ser | Thr | Ser | Thr | Cys | Glu | Phe | |
| 380 | | | | | 385 | | | | 390 | | | | | 395 | | |
| gtt | cgt | act | ctc | aat | ggg | cac | aag | cgg | ggc | att | gcc | tgt | ctc | cag | tac | 1372 |

| | | | | | | | | | | | | | | | | |
|------------|-------------|-------------|-------------|------------|------------|------------|------------|-------------|-----|-----|-----|-----|-----|-----|-----|------|
| Val | Arg | Thr | Leu | Asn | Gly | His | Lys | Arg | Gly | Ile | Ala | Cys | Leu | Gln | Tyr | |
| | | | | 400 | | | | | 405 | | | | | 410 | | |
| agg | gat | cgc | ctg | gtt | gtt | agt | gga | tca | tca | gat | aat | acc | att | agg | ctc | 1420 |
| Arg | Asp | Arg | Leu | Val | Val | Ser | Gly | Ser | Ser | Asp | Asn | Thr | Ile | Arg | Leu | |
| | | | 415 | | | | 420 | | | | | | 425 | | | |
| tgg | gat | att | gaa | tgt | ggt | gcc | tgt | tta | aga | gtc | cta | gag | gga | cat | gaa | 1468 |
| Trp | Asp | Ile | Glu | Cys | Gly | Ala | Cys | Leu | Arg | Val | Leu | Glu | Gly | His | Glu | |
| | | 430 | | | | 435 | | | | | 440 | | | | | |
| gaa | ttg | gtc | cga | tgc | atc | cgg | ttt | gat | aac | aag | agg | att | gtc | agt | ggg | 1516 |
| Glu | Leu | Val | Arg | Cys | Ile | Arg | Phe | Asp | Asn | Lys | Arg | Ile | Val | Ser | Gly | |
| | 445 | | | | | 450 | | | | | 455 | | | | | |
| gcc | tat | gat | ggg | aaa | att | aaa | gtt | tgg | gac | ttg | caa | gct | gct | ctt | gac | 1564 |
| Ala | Tyr | Asp | Gly | Lys | Ile | Lys | Val | Trp | Asp | Leu | Gln | Ala | Ala | Leu | Asp | |
| 460 | | | | 465 | | | | 470 | | | | | | 475 | | |
| cct | cga | gcc | cca | gca | agc | aca | ttg | tgt | ttg | cgc | aca | ttg | gtg | gaa | cat | 1612 |
| Pro | Arg | Ala | Pro | Ala | Ser | Thr | Leu | Cys | Leu | Arg | Thr | Leu | Val | Glu | His | |
| | | | 480 | | | | | 485 | | | | | 490 | | | |
| tct | gga | cgt | gtg | ttt | cgg | ctc | cag | ttt | gat | gag | ttt | cag | atc | atc | agc | 1660 |
| Ser | Gly | Arg | Val | Phe | Arg | Leu | Gln | Phe | Asp | Glu | Phe | Gln | Ile | Ile | Ser | |
| | | 495 | | | | | 500 | | | | | 505 | | | | |
| agc | tcc | cat | gat | gac | act | att | ttg | att | tgg | gat | ttc | tta | aat | gtg | cct | 1708 |
| Ser | Ser | His | Asp | Asp | Thr | Ile | Leu | Ile | Trp | Asp | Phe | Leu | Asn | Val | Pro | |
| | | 510 | | | | | 515 | | | | 520 | | | | | |
| ccc | agt | gcc | cag | aat | gag | acc | cgt | tct | ccc | tcc | aga | aca | tac | act | tac | 1756 |
| Pro | Ser | Ala | Gln | Asn | Glu | Thr | Arg | Ser | Pro | Ser | Arg | Thr | Tyr | Thr | Tyr | |
| | 525 | | | | 530 | | | | 535 | | | | | | | |
| atc | tct | aga | taa | cag | tctgcacttt | cacccggttc | agggttttct | agtccttgaac | | | | | | | | 1811 |
| Ile | Ser | Arg | * | | | | | | | | | | | | | |
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 Met Asp Gly Ser Thr Glu Arg Leu Glu Ala Arg Arg
 1 5 10
 cca gcc ggg agg ctg ccg tgg tca tcc agg caa gaa atg acg agg cgt 159
 Pro Ala Gly Arg Leu Pro Trp Ser Ser Arg Gln Glu Met Thr Arg Arg
 15 20 25
 ccc tcc ctg atg gcg ggc aga cag cac gga tgg agc gcc cag cag agt 207
 Pro Ser Leu Met Ala Gly Arg Gln His Gly Trp Ser Ala Gln Gln Ser
 30 35 40
 gcc acc gtg gcc aac cca gtg cct ggt gcc aac ccg gac ctg ctt ccc 255
 Ala Thr Val Ala Asn Pro Val Pro Gly Ala Asn Pro Asp Leu Leu Pro
 45 50 55 60
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 His Phe Leu Val Glu Pro Glu Asp Val Tyr Ile Val Lys Asn Lys Pro
 65 70 75
 gtg ctg ctt gtg tgc aag gcc gtg ccc gcc acg cag atc ttc ttc aag 351
 Val Leu Leu Val Cys Lys Ala Val Pro Ala Thr Gln Ile Phe Phe Lys
 80 85 90
 tgc aac ggg gag tgg gtg cgc cag gtg gac cac gtg atc gag cgc agc 399
 Cys Asn Gly Glu Trp Val Arg Gln Val Asp His Val Ile Glu Arg Ser
 95 100 105
 aca gac ggg agc agt ggg ctg ccc acc atg gag gtc cgc att aat gtc 447
 Thr Asp Gly Ser Ser Gly Leu Pro Thr Met Glu Val Arg Ile Asn Val
 110 115 120
 tca agg cag cag gtc gag aag gtg ttc ggg ctg gag gaa tac tgg tgc 495
 Ser Arg Gln Gln Val Glu Lys Val Phe Gly Leu Glu Glu Tyr Trp Cys
 125 130 135 140
 cag tgc gtg gca tgg agc tcc tcg ggc acc acc aag agt cag aag gcc 543
 Gln Cys Val Ala Trp Ser Ser Ser Gly Thr Thr Lys Ser Gln Lys Ala
 145 150 155
 tac atc cgc ata gcc tat ttg cgc aag aac ttc gag cag gag ccg ctg 591
 Tyr Ile Arg Ile Ala Tyr Leu Arg Lys Asn Phe Glu Gln Glu Pro Leu
 160 165 170
 gcc aag gag gtg tcc ctg gag cag ggc atc gtg ctg ccc tgc cgt cca 639
 Ala Lys Glu Val Ser Leu Glu Gln Gly Ile Val Leu Pro Cys Arg Pro
 175 180 185
 ccg gag ggc atc cct cca gcc gag gtg gag tgg ctc cgg aac gag gac 687
 Pro Glu Gly Ile Pro Pro Ala Glu Val Glu Trp Leu Arg Asn Glu Asp
 190 195 200

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| ctg gtg gac ccg tcc ctg gac ccc aat gta tac atc acg cgg gag cac | 735 |
| Leu Val Asp Pro Ser Leu Asp Pro Asn Val Tyr Ile Thr Arg Glu His | |
| 205 210 215 220 | |
| agc ctg gtg gtg cga cag gcc cgc ctt gct gac acg gcc aac tac acc | 783 |
| Ser Leu Val Val Arg Gln Ala Arg Leu Ala Asp Thr Ala Asn Tyr Thr | |
| 225 230 235 | |
| tgc gtg gcc aag aac atc gtg gca cgt cgc cgc agc gcc tcc gct gct | 831 |
| Cys Val Ala Lys Asn Ile Val Ala Arg Arg Arg Ser Ala Ser Ala Ala | |
| 240 245 250 | |
| gtc atc gtc tac ggt ggg ccc cgg gac tcc ctg gtc aca ggg aga ggc | 879 |
| Val Ile Val Tyr Gly Gly Pro Arg Asp Ser Leu Val Thr Gly Arg Gly | |
| 255 260 265 | |
| act gcg gtg ccc ctg ggc agt gac atg tgg ctg tcc ttc tct gtc cgg | 927 |
| Thr Ala Val Pro Leu Gly Ser Asp Met Trp Leu Ser Phe Ser Val Arg | |
| 270 275 280 | |
| cca gtg aac ggt ggg tgg tcg acg tgg acc gag tgg tcc gtc tgc agc | 975 |
| Pro Val Asn Gly Gly Trp Ser Thr Trp Thr Glu Trp Ser Val Cys Ser | |
| 285 290 295 300 | |
| gcc agc tgt ggg cgc ggc tgg cag aaa cgg agc cgg agc tgc acc aac | 1023 |
| Ala Ser Cys Gly Arg Gly Trp Gln Lys Arg Ser Arg Ser Cys Thr Asn | |
| 305 310 315 | |
| ccg gcg cct ctc aac ggg ggc gct ttc tgt gag ggg cag aat gtc cag | 1071 |
| Pro Ala Pro Leu Asn Gly Gly Ala Phe Cys Glu Gly Gln Asn Val Gln | |
| 320 325 330 | |
| aaa aca gcc tgc gcc acc ctg tgc cca gtg gac ggc agc tgg agc ccg | 1119 |
| Lys Thr Ala Cys Ala Thr Leu Cys Pro Val Asp Gly Ser Trp Ser Pro | |
| 335 340 345 | |
| tgg agc aag tgg tcg gcc tgt ggg ctg gac tgc acc cac tgg cgg agc | 1167 |
| Trp Ser Lys Trp Ser Ala Cys Gly Leu Asp Cys Thr His Trp Arg Ser | |
| 350 355 360 | |
| cgt gag tgc tct gac cca gca ccc cgc aac gga ggg gag gag tgc cag | 1215 |
| Arg Glu Cys Ser Asp Pro Ala Pro Arg Asn Gly Gly Glu Glu Cys Gln | |
| 365 370 375 380 | |
| ggc act gac ctg gac acc cgc aac tgt acc agt gac ctc tgt gta cac | 1263 |
| Gly Thr Asp Leu Asp Thr Arg Asn Cys Thr Ser Asp Leu Cys Val His | |
| 385 390 395 | |
| aac tcc tac acc cct gcc ccc acc aag gcc atg ctg tct ccc gca gct | 1311 |
| Asn Ser Tyr Thr Pro Ala Pro Thr Lys Ala Met Leu Ser Pro Ala Ala | |
| 400 405 410 | |
| gct tct ggc cct gag gac gtg gcc ctc tat gtg ggc ctc atc gcc gtg | 1359 |
| Ala Ser Gly Pro Glu Asp Val Ala Leu Tyr Val Gly Leu Ile Ala Val | |
| 415 420 425 | |
| gcc gtc tgc ctg gtc ctg ctg ctg ctt gtc ctc atc ctc gtt tat tgc | 1407 |
| Ala Val Cys Leu Val Leu Leu Leu Leu Val Leu Ile Leu Val Tyr Cys | |
| 430 435 440 | |
| cgg aag aag gag ggg ctg gac tca gat gtg gct gac tcg tcc att ctc | 1455 |
| Arg Lys Lys Glu Gly Leu Asp Ser Asp Val Ala Asp Ser Ser Ile Leu | |
| 445 450 455 460 | |

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| acc tca ggc ttc cag ccc gtc agc atc aag ccc agc aaa gca gac aac | 1503 |
| Thr Ser Gly Phe Gln Pro Val Ser Ile Lys Pro Ser Lys Ala Asp Asn | |
| 465 470 475 | |
| ccc cat ctg ctc acc atc cag ccg gac ctc agc acc acc acc acc acc | 1551 |
| Pro His Leu Leu Thr Ile Gln Pro Asp Leu Ser Thr Thr Thr Thr Thr | |
| 480 485 490 | |
| tac cag ggc agt ctc tgt ccc cgg cag gat ggg ccc agc ccc aag ttc | 1599 |
| Tyr Gln Gly Ser Leu Cys Pro Arg Gln Asp Gly Pro Ser Pro Lys Phe | |
| 495 500 505 | |
| cag ctc acc aat ggg cac ctg ctc agc ccc ctg ggt ggc ggc cgc cac | 1647 |
| Gln Leu Thr Asn Gly His Leu Leu Ser Pro Leu Gly Gly Gly Arg His | |
| 510 515 520 | |
| aca ctg cac cac agc tct ccc acc tct gag gcc gag gag ttc gtc tcc | 1695 |
| Thr Leu His His Ser Ser Pro Thr Ser Glu Ala Glu Glu Phe Val Ser | |
| 525 530 535 540 | |
| cgc ctc tcc acc cag aac tac ttc cgc tcc ctg ccc cga ggc acc agc | 1743 |
| Arg Leu Ser Thr Gln Asn Tyr Phe Arg Ser Leu Pro Arg Gly Thr Ser | |
| 545 550 555 | |
| aac atg acc tat ggg acc ttc aac ttc ctc ggg ggc cgg ctg atg atc | 1791 |
| Asn Met Thr Tyr Gly Thr Phe Asn Phe Leu Gly Gly Arg Leu Met Ile | |
| 560 565 570 | |
| cct aat aca gga atc agc ctc ctc atc ccc cca gat gcc ata ccc cga | 1839 |
| Pro Asn Thr Gly Ile Ser Leu Leu Ile Pro Pro Asp Ala Ile Pro Arg | |
| 575 580 585 | |
| ggg aag atc tat gag atc tac ctc acg ctg cac aag ccg gaa gac gtg | 1887 |
| Gly Lys Ile Tyr Glu Ile Tyr Leu Thr Leu His Lys Pro Glu Asp Val | |
| 590 595 600 | |
| agc tgt gga ccc cct ggc gtc ctg ctc acc cgg cca gtc atc ctg gct | 1935 |
| Ser Cys Gly Pro Pro Gly Val Leu Leu Thr Arg Pro Val Ile Leu Ala | |
| 605 610 615 620 | |
| atg gac cac tgt ggg gag ccc agc cct gac agc tgg agc ctg cgc ctc | 1983 |
| Met Asp His Cys Gly Glu Pro Ser Pro Asp Ser Trp Ser Leu Arg Leu | |
| 625 630 635 | |
| aaa aag cag tcg tgc gag ggc agc tgg gag gat gtg ctg cac ctg ggc | 2031 |
| Lys Lys Gln Ser Cys Glu Gly Ser Trp Glu Asp Val Leu His Leu Gly | |
| 640 645 650 | |
| gag gag gcg ccc tcc cac ctc tac tac tgc cag ctg gag gcc agt gcc | 2079 |
| Glu Glu Ala Pro Ser His Leu Tyr Tyr Cys Gln Leu Glu Ala Ser Ala | |
| 655 660 665 | |
| tgc tac gtc ttc acc gag cag ctg ggc cgc ttt gcc ctg gtg gga gag | 2127 |
| Cys Tyr Val Phe Thr Glu Gln Leu Gly Arg Phe Ala Leu Val Gly Glu | |
| 670 675 680 | |
| gcc ctc agc gtg gct gcc gcc aag cgc ctc aag ctg ctt ctg ttt gcg | 2175 |
| Ala Leu Ser Val Ala Ala Ala Lys Arg Leu Lys Leu Leu Leu Phe Ala | |
| 685 690 695 700 | |
| ccg gtg gcc tgc acc tcc ctc gag tac aac atc cgg gtc tac tgc ctg | 2223 |
| Pro Val Ala Cys Thr Ser Leu Glu Tyr Asn Ile Arg Val Tyr Cys Leu | |
| 705 710 715 | |

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|---|------|
| cat gac acc cac gat gca ctc aag gag gtg gtg cag ctg gag aag cag | 2271 |
| His Asp Thr His Asp Ala Leu Lys Glu Val Val Gln Leu Glu Lys Gln | |
| 720 725 730 | |
| ctg ggg gga cag ctg atc cag gag cca cgg gtc ctg cac ttc aag gac | 2319 |
| Leu Gly Gly Gln Leu Ile Gln Glu Pro Arg Val Leu His Phe Lys Asp | |
| 735 740 745 | |
| agt tac cac aac ctg cgc cta tcc atc cac gat gtg ccc agc tcc ctg | 2367 |
| Ser Tyr His Asn Leu Arg Leu Ser Ile His Asp Val Pro Ser Ser Leu | |
| 750 755 760 | |
| tgg aag agt aag ctc ctt gtc agc tac cag gag atc ccc ttt tat cac | 2415 |
| Trp Lys Ser Lys Leu Leu Val Ser Tyr Gln Glu Ile Pro Phe Tyr His | |
| 765 770 775 780 | |
| atc tgg aat ggc acg cag cgg tac ttg cac tgc acc ttc acc ctg gag | 2463 |
| Ile Trp Asn Gly Thr Gln Arg Tyr Leu His Cys Thr Phe Thr Leu Glu | |
| 785 790 795 | |
| cgt gtc agc ccc agc act agt gac ctg gcc tgc aag ctg tgg gtg tgg | 2511 |
| Arg Val Ser Pro Ser Thr Ser Asp Leu Ala Cys Lys Leu Trp Val Trp | |
| 800 805 810 | |
| cag gtg gag ggc gac ggg cag agc ttc agc atc aac ttc aac atc acc | 2559 |
| Gln Val Glu Gly Asp Gly Gln Ser Phe Ser Ile Asn Phe Asn Ile Thr | |
| 815 820 825 | |
| aag gac aca agg ttt gct gag ctg ctg gct ctg gag agt gaa gcg ggg | 2607 |
| Lys Asp Thr Arg Phe Ala Glu Leu Leu Ala Leu Glu Ser Glu Ala Gly | |
| 830 835 840 | |
| gtc cca gcc ctg gtg ggc ccc agt gcc ttc aag atc ccc ttc ctc att | 2655 |
| Val Pro Ala Leu Val Gly Pro Ser Ala Phe Lys Ile Pro Phe Leu Ile | |
| 845 850 855 860 | |
| cgg cag aag ata att tcc agc ctg gac cca ccc tgt agg cgg ggt gcc | 2703 |
| Arg Gln Lys Ile Ile Ser Ser Leu Asp Pro Pro Cys Arg Arg Gly Ala | |
| 865 870 875 | |
| gac tgg cgg act ctg gcc cag aaa ctc cac ctg gac agc cat ctc agc | 2751 |
| Asp Trp Arg Thr Leu Ala Gln Lys Leu His Leu Asp Ser His Leu Ser | |
| 880 885 890 | |
| ttc ttt gcc tcc aag ccc agc ccc aca gcc atg atc ctc aac ctg tgg | 2799 |
| Phe Phe Ala Ser Lys Pro Ser Pro Thr Ala Met Ile Leu Asn Leu Trp | |
| 895 900 905 | |
| gag gcg cgg cac ttc ccc aac ggc aac ctc agc cag ctg gct gca gca | 2847 |
| Glu Ala Arg His Phe Pro Asn Gly Asn Leu Ser Gln Leu Ala Ala Ala | |
| 910 915 920 | |
| gtg gct gga ctg ggc cag cca gac gct ggc ctc ttc aca gtg tcg gag | 2895 |
| Val Ala Gly Leu Gly Gln Pro Asp Ala Gly Leu Phe Thr Val Ser Glu | |
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 cttcggcccc gggtaggtctc ccccgcccgg ggaccccttg tgccctccct cccgggctcc 180
 gagacc atg agg aaa ttc aac atc agg aag gtg ctg gac ggc ctg acc 228
 Met Arg Lys Phe Asn Ile Arg Lys Val Leu Asp Gly Leu Thr
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 gcc ggc tcg tcc tcg gcg tcg cag cag caa cag cag cag cat ccg cct 276
 Ala Gly Ser Ser Ser Ala Ser Gln Gln Gln Gln Gln Gln His Pro Pro
 15 20 25 30
 ggg aac cgg gag ccg gag atc cag gaa acg ctc cag tcc gag cac ttt 324
 Gly Asn Arg Glu Pro Glu Ile Gln Glu Thr Leu Gln Ser Glu His Phe
 35 40 45
 cag ctc tgc aag act gtt cgc cat gga ttt ccc tat caa ccc tca gcc 372
 Gln Leu Cys Lys Thr Val Arg His Gly Phe Pro Tyr Gln Pro Ser Ala
 50 55 60
 ctg gcc ttt gat cct gta cag aag atc ctg gca gtg gga act cag act 420
 Leu Ala Phe Asp Pro Val Gln Lys Ile Leu Ala Val Gly Thr Gln Thr
 65 70 75
 ggt gct tta agg ctc ttt ggt cgt cca gga gta gaa tgt tat tgc cag 468
 Gly Ala Leu Arg Leu Phe Gly Arg Pro Gly Val Glu Cys Tyr Cys Gln
 80 85 90
 cat gac agt gga gct gca gta atc cag ctc cag ttc ctg att aat gag 516
 His Asp Ser Gly Ala Ala Val Ile Gln Leu Gln Phe Leu Ile Asn Glu
 95 100 105 110
 gga gcg ctt gtg agt gcc ttg gct gat gac acc tta cac tta tgg aat 564
 Gly Ala Leu Val Ser Ala Leu Ala Asp Asp Thr Leu His Leu Trp Asn
 115 120 125
 tta cgt cag aag agg cct gcc ata cta cat tcg ctt aaa ttt tgc aga 612
 Leu Arg Gln Lys Arg Pro Ala Ile Leu His Ser Leu Lys Phe Cys Arg
 130 135 140
 gaa agg gtt aca ttt tgc cat ctg cct ttc cag agt aag tgg ctc tat 660
 Glu Arg Val Thr Phe Cys His Leu Pro Phe Gln Ser Lys Trp Leu Tyr
 145 150 155
 gtg ggc act gaa cga ggt aat ata cat att gtc aat gtg gag tcc ttc 708
 Val Gly Thr Glu Arg Gly Asn Ile His Ile Val Asn Val Glu Ser Phe
 160 165 170
 aca ctc tca ggc tac gtc att atg tgg aat aaa gcc att gaa ctg tca 756
 Thr Leu Ser Gly Tyr Val Ile Met Trp Asn Lys Ala Ile Glu Leu Ser
 175 180 185 190

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|---|------|
| tct aaa tct cac cca gga cct gtg gtc cat ata agt gat aat cca atg | 804 |
| Ser Lys Ser His Pro Gly Pro Val Val His Ile Ser Asp Asn Pro Met | |
| 195 200 205 | |
| gac gag gga aag ctt ttg att ggc ttt gaa tct gga aca gta gtt cta | 852 |
| Asp Glu Gly Lys Leu Leu Ile Gly Phe Glu Ser Gly Thr Val Val Leu | |
| 210 215 220 | |
| tgg gac ctc aaa tac aag aaa gcc gac tac aga tac aca tat gat gag | 900 |
| Trp Asp Leu Lys Tyr Lys Lys Ala Asp Tyr Arg Tyr Thr Tyr Asp Glu | |
| 225 230 235 | |
| gct atc cac tct gtt gct tgg cat cat gaa gga aaa caa ttt att tgc | 948 |
| Ala Ile His Ser Val Ala Trp His His Glu Gly Lys Gln Phe Ile Cys | |
| 240 245 250 | |
| agt cat tca gat ggc acc ttg acc ata tgg aat gta agg tcc cct gct | 996 |
| Ser His Ser Asp Gly Thr Leu Thr Ile Trp Asn Val Arg Ser Pro Ala | |
| 255 260 265 270 | |
| aaa cca gta cag aca atc act cca cat gga aaa cag tta agg gat ggg | 1044 |
| Lys Pro Val Gln Thr Ile Thr Pro His Gly Lys Gln Leu Arg Asp Gly | |
| 275 280 285 | |
| aag aag cca gaa cca tgc aaa cct atc ctc aag gtg gaa ttc aaa acg | 1092 |
| Lys Lys Pro Glu Pro Cys Lys Pro Ile Leu Lys Val Glu Phe Lys Thr | |
| 290 295 300 | |
| act aga tct ggg gag cct ttt att att tta tca gga ggt ttg tca tat | 1140 |
| Thr Arg Ser Gly Glu Pro Phe Ile Ile Leu Ser Gly Gly Leu Ser Tyr | |
| 305 310 315 | |
| gat act gta gga aga aga cct tgc tta aca gtg atg cat ggg aaa agc | 1188 |
| Asp Thr Val Gly Arg Arg Pro Cys Leu Thr Val Met His Gly Lys Ser | |
| 320 325 330 | |
| act gct gtg cta gaa atg gac tat tca att gtc gat ttt cta acg ctg | 1236 |
| Thr Ala Val Leu Glu Met Asp Tyr Ser Ile Val Asp Phe Leu Thr Leu | |
| 335 340 345 350 | |
| tgt gaa aca cca tac cca aat gat ttt caa gaa cca tat gct gtg gtt | 1284 |
| Cys Glu Thr Pro Tyr Pro Asn Asp Phe Gln Glu Pro Tyr Ala Val Val | |
| 355 360 365 | |
| gtt ctt cta gaa aag gat tta gta ctt ata gac ctt gca caa aat gga | 1332 |
| Val Leu Leu Glu Lys Asp Leu Val Leu Ile Asp Leu Ala Gln Asn Gly | |
| 370 375 380 | |
| tat cct ata ttt gaa aat ccc tac cct ttg agt ata cat gag tcc cct | 1380 |
| Tyr Pro Ile Phe Glu Asn Pro Tyr Pro Leu Ser Ile His Glu Ser Pro | |
| 385 390 395 | |
| gtt aca tgt tgc gaa tat ttt gcg gat tgt cct gtg gac ctt att cct | 1428 |
| Val Thr Cys Cys Glu Tyr Phe Ala Asp Cys Pro Val Asp Leu Ile Pro | |
| 400 405 410 | |
| gca ctt tat tct gtt gga gct aga cag aaa cgt caa ggt tac agc aaa | 1476 |
| Ala Leu Tyr Ser Val Gly Ala Arg Gln Lys Arg Gln Gly Tyr Ser Lys | |
| 415 420 425 430 | |
| aag gaa tgg ccc atc aac gga ggt aat tgg ggc ttg ggt gct caa agt | 1524 |
| Lys Glu Trp Pro Ile Asn Gly Gly Asn Trp Gly Leu Gly Ala Gln Ser | |
| 435 440 445 | |

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| tac cca gaa ata att att aca ggg cat gct gat ggg tca gtt aag ttc | 1572 |
| Tyr Pro Glu Ile Ile Ile Thr Gly His Ala Asp Gly Ser Val Lys Phe | |
| 450 455 460 | |
| tgg gat gct tct gca ata act cta caa gta tta tat aag cta aag aca | 1620 |
| Trp Asp Ala Ser Ala Ile Thr Leu Gln Val Leu Tyr Lys Leu Lys Thr | |
| 465 470 475 | |
| tct aaa gta ttt gaa aag tca aga aat aaa gat gac agg cca aac aca | 1668 |
| Ser Lys Val Phe Glu Lys Ser Arg Asn Lys Asp Asp Arg Pro Asn Thr | |
| 480 485 490 | |
| gac att gta gat gaa gat cca tat gcc att cag atc atc tcc tgg tgt | 1716 |
| Asp Ile Val Asp Glu Asp Pro Tyr Ala Ile Gln Ile Ile Ser Trp Cys | |
| 495 500 505 510 | |
| cca gaa agt aga atg ctg tgc atc gct gga gtt tca gct cat gtc att | 1764 |
| Pro Glu Ser Arg Met Leu Cys Ile Ala Gly Val Ser Ala His Val Ile | |
| 515 520 525 | |
| att tat aga ttc agc aag cag gaa gta atc aca gaa gtc att ccg atg | 1812 |
| Ile Tyr Arg Phe Ser Lys Gln Glu Val Ile Thr Glu Val Ile Pro Met | |
| 530 535 540 | |
| ctt gaa gtt cga tta tta tat gag ata aat gat gtg gaa act ccg gag | 1860 |
| Leu Glu Val Arg Leu Leu Tyr Glu Ile Asn Asp Val Glu Thr Pro Glu | |
| 545 550 555 | |
| ggg gag cag cca cca cct ttg cca aca ccc gtg gga ggg tcc aac cct | 1908 |
| Gly Glu Gln Pro Pro Pro Leu Pro Thr Pro Val Gly Gly Ser Asn Pro | |
| 560 565 570 | |
| cag ccc atc cct cct cag tct cat cca tct acc agt agc agt tca tct | 1956 |
| Gln Pro Ile Pro Pro Gln Ser His Pro Ser Thr Ser Ser Ser Ser | |
| 575 580 585 590 | |
| gat ggg ctt cgt gat aat gta cct tgt tta aat gta gtg tgt aag gag | 2004 |
| Asp Gly Leu Arg Asp Asn Val Pro Cys Leu Asn Val Val Cys Lys Glu | |
| 595 600 605 | |
| cat gga aat cat ttt atc tta aca aga agt aaa aag ctg aac aaa ctg | 2052 |
| His Gly Asn His Phe Ile Leu Thr Arg Ser Lys Lys Leu Asn Lys Leu | |
| 610 615 620 | |
| gaa aat caa caa ctc ttc tta aag atc tgt aag aga aga ctg cct tca | 2100 |
| Glu Asn Gln Gln Leu Phe Leu Lys Ile Cys Lys Arg Arg Leu Pro Ser | |
| 625 630 635 | |
| gaa ata aca ctt tta cga gag cct aac ctg ctg ggg ttt tat cag gga | 2148 |
| Glu Ile Thr Leu Leu Arg Glu Pro Asn Leu Leu Gly Phe Tyr Gln Gly | |
| 640 645 650 | |
| cca act aac ctg aga gaa gaa aaa tca ctc cag tgg gcc caa gcc ttc | 2196 |
| Pro Thr Asn Leu Arg Glu Glu Lys Ser Leu Gln Trp Ala Gln Ala Phe | |
| 655 660 665 670 | |
| caa gta aag gaa gag aag tac gca act cca gcc cac ttt agc cat ctt | 2244 |
| Gln Val Lys Glu Glu Lys Tyr Ala Thr Pro Ala His Phe Ser His Leu | |
| 675 680 685 | |
| att cca cct aaa agg gag tgg gag gaa gta aaa gaa cca gtg gaa ttt | 2292 |
| Ile Pro Pro Lys Arg Glu Trp Glu Glu Val Lys Glu Pro Val Glu Phe | |
| 690 695 700 | |

| | |
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| gaa ata att aat ttg aaa tta ttt gaa att tat att agc acc cca aaa | 2340 |
| Glu Ile Ile Asn Leu Lys Leu Phe Glu Ile Tyr Ile Ser Thr Pro Lys | |
| 705 710 715 | |
| aat gaa ata ctt aaa tat aaa tct aac aaa tat gta caa gat cta cac | 2388 |
| Asn Glu Ile Leu Lys Tyr Lys Ser Asn Lys Tyr Val Gln Asp Leu His | |
| 720 725 730 | |
| gaa gaa cag cac aaa act ctg cag agt gag aat att ctg tat gat att | 2436 |
| Glu Glu Gln His Lys Thr Leu Gln Ser Glu Asn Ile Leu Tyr Asp Ile | |
| 735 740 745 750 | |
| ata atg atg aaa gac atg gtt aca ttt tgc cat ctg cct ttc cag agt | 2484 |
| Ile Met Met Lys Asp Met Val Thr Phe Cys His Leu Pro Phe Gln Ser | |
| 755 760 765 | |
| aag tgg ctc tat gtg ggc act gaa cga ggt aat ata cat att gtc aat | 2532 |
| Lys Trp Leu Tyr Val Gly Thr Glu Arg Gly Asn Ile His Ile Val Asn | |
| 770 775 780 | |
| gtg gag tcc ttc aca ctc tca ggc tac gtc att atg tgg aat aaa gcc | 2580 |
| Val Glu Ser Phe Thr Leu Ser Gly Tyr Val Ile Met Trp Asn Lys Ala | |
| 785 790 795 | |
| att gaa ctg tca tct aaa tct cac cca gga cct gtg gtc cat ata agt | 2628 |
| Ile Glu Leu Ser Ser Lys Ser His Pro Gly Pro Val Val His Ile Ser | |
| 800 805 810 | |
| gat aat cca atg gac gag gga aag ctt ttg att ggc ttt gaa tct gga | 2676 |
| Asp Asn Pro Met Asp Glu Gly Lys Leu Leu Ile Gly Phe Glu Ser Gly | |
| 815 820 825 830 | |
| aca gta gtt tta tgg gac ctc aaa tca aag aaa gcc gac tac aga tac | 2724 |
| Thr Val Val Leu Trp Asp Leu Lys Ser Lys Lys Ala Asp Tyr Arg Tyr | |
| 835 840 845 | |
| aca tat gat gag gct atc cac tct gtt gct tgg cat cat gaa gga aaa | 2772 |
| Thr Tyr Asp Glu Ala Ile His Ser Val Ala Trp His His Glu Gly Lys | |
| 850 855 860 | |
| caa ttt att tgc agt cat tca gat ggc acc ttg act ata tgg aat gta | 2820 |
| Gln Phe Ile Cys Ser His Ser Asp Gly Thr Leu Thr Ile Trp Asn Val | |
| 865 870 875 | |
| agg tcc cct gct aaa cca gta cag aca atc act cca cat gga aaa cag | 2868 |
| Arg Ser Pro Ala Lys Pro Val Gln Thr Ile Thr Pro His Gly Lys Gln | |
| 880 885 890 | |
| tta aag gat ggg aag aag cca gaa cca tgc aaa cct atc ctc aag gtg | 2916 |
| Leu Lys Asp Gly Lys Lys Pro Glu Pro Cys Lys Pro Ile Leu Lys Val | |
| 895 900 905 910 | |
| gaa ttc aaa acg act aga tct ggg gag cct ttt att att tta tca gga | 2964 |
| Glu Phe Lys Thr Thr Arg Ser Gly Glu Pro Phe Ile Ile Leu Ser Gly | |
| 915 920 925 | |
| ggt ttg tca tat gat act gta gga aga aga cct tgc tta aca gtg atg | 3012 |
| Gly Leu Ser Tyr Asp Thr Val Gly Arg Arg Pro Cys Leu Thr Val Met | |
| 930 935 940 | |
| cat ggg aaa agc act gct gtg cta gaa atg gac tat tca att gtt gat | 3060 |
| His Gly Lys Ser Thr Ala Val Leu Glu Met Asp Tyr Ser Ile Val Asp | |
| 945 950 955 | |

ttt cta acg ctg tgt gaa aca cca tac cca aat gat ttt caa gaa cca 3108
 Phe Leu Thr Leu Cys Glu Thr Pro Tyr Pro Asn Asp Phe Gln Glu Pro
 960 965 970

 tat gct gtg gtt gtt ctt cta gaa aag gat tta gta ctt ata gac ctt 3156
 Tyr Ala Val Val Val Leu Leu Glu Lys Asp Leu Val Leu Ile Asp Leu
 975 980 985 990

 gca caa aat gga tat cct ata ttt gaa atc cct acc ctt tga gtaacat 3205
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 His Leu Lys His Leu Arg Thr Leu Leu Ser Pro Gln Asp Gly Ala Ala
 5 10 15

 aag gtg acc tgc atg gct tgg tcc cag aac aat gcc aaa ttt gct gtc 151
 Lys Val Thr Cys Met Ala Trp Ser Gln Asn Asn Ala Lys Phe Ala Val
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 tgc aca gtg gac cga gtg gtc ttg ctg tat gat gaa cat gga gaa cgg 199
 Cys Thr Val Asp Arg Val Val Leu Leu Tyr Asp Glu His Gly Glu Arg
 35 40 45

 aga gat aaa ttc tcc acc aaa cca gct gac atg aag tat ggc agg aag 247
 Arg Asp Lys Phe Ser Thr Lys Pro Ala Asp Met Lys Tyr Gly Arg Lys
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 agc tat atg gtg aag ggc atg gct ttt tct cct gat tcc act aaa att 295
 Ser Tyr Met Val Lys Gly Met Ala Phe Ser Pro Asp Ser Thr Lys Ile
 70 75 80

 gcc ata gga cag act gac aac atc atc tat gtc tac aag att gga gaa 343
 Ala Ile Gly Gln Thr Asp Asn Ile Ile Tyr Val Tyr Lys Ile Gly Glu
 85 90 95

 gat tgg ggt gac aag aaa gtc atc tgc aac aag ttc atc cag acg agt 391
 Asp Trp Gly Asp Lys Lys Val Ile Cys Asn Lys Phe Ile Gln Thr Ser
 100 105 110

 gct gtc act tgt ctg caa tgg ccg gca gaa tac atc att gtc ttt gga 439
 Ala Val Thr Cys Leu Gln Trp Pro Ala Glu Tyr Ile Ile Val Phe Gly
 115 120 125

 ctg gct gaa ggg aag gtt cgt tta gca aac acc aaa act aat aaa tca 487

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Leu | Ala | Glu | Gly | Lys | Val | Arg | Leu | Ala | Asn | Thr | Lys | Thr | Asn | Lys | Ser | | |
| 130 | | | | | 135 | | | | | 140 | | | | | 145 | | |
| tct | acc | atc | tat | ggg | aca | gag | tct | tac | gtg | gtg | tcc | ctg | aca | aca | aat | 535 | |
| Ser | Thr | Ile | Tyr | Gly | Thr | Glu | Ser | Tyr | Val | Val | Ser | Leu | Thr | Thr | Asn | | |
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| tgc | tct | ggg | aaa | gga | att | ctc | tct | ggt | cat | gca | gat | ggt | acc | atc | gtt | 583 | |
| Cys | Ser | Gly | Lys | Gly | Ile | Leu | Ser | Gly | His | Ala | Asp | Gly | Thr | Ile | Val | | |
| | | | 165 | | | | | 170 | | | | | 175 | | | | |
| agg | tat | ttc | ttt | gat | gat | gaa | ggc | tct | gga | gag | tca | cag | gag | aag | ttg | 631 | |
| Arg | Tyr | Phe | Phe | Asp | Asp | Glu | Gly | Ser | Gly | Glu | Ser | Gln | Glu | Lys | Leu | | |
| | | 180 | | | | | 185 | | | | | 190 | | | | | |
| gtt | aac | cac | ccg | tgt | cca | ccc | tat | gcc | ttg | gca | tgg | gca | acc | aat | agc | 679 | |
| Val | Asn | His | Pro | Cys | Pro | Pro | Tyr | Ala | Leu | Ala | Trp | Ala | Thr | Asn | Ser | | |
| | 195 | | | | | 200 | | | | 205 | | | | | | | |
| atc | gtg | gct | gca | ggc | tgt | gat | cgg | aaa | att | gta | gcc | tat | gga | aaa | gaa | 727 | |
| Ile | Val | Ala | Ala | Gly | Cys | Asp | Arg | Lys | Ile | Val | Ala | Tyr | Gly | Lys | Glu | | |
| 210 | | | | | 215 | | | | | 220 | | | | | 225 | | |
| ggt | cac | atg | cta | caa | act | ttt | gat | tat | agc | cgt | gac | cct | cag | gag | cgg | 775 | |
| Gly | His | Met | Leu | Gln | Thr | Phe | Asp | Tyr | Ser | Arg | Asp | Pro | Gln | Glu | Arg | | |
| | | | | 230 | | | | | 235 | | | | | 240 | | | |
| gag | ttc | acc | aca | gct | gta | tca | agt | cct | ggg | ggc | cag | tct | gtt | gtg | cta | 823 | |
| Glu | Phe | Thr | Thr | Ala | Val | Ser | Ser | Pro | Gly | Gly | Gln | Ser | Val | Val | Leu | | |
| | | | 245 | | | | | 250 | | | | | 255 | | | | |
| gga | agt | tat | gac | agg | ctt | cgg | gtg | ttc | aac | tgg | atc | cct | cga | aga | agc | 871 | |
| Gly | Ser | Tyr | Asp | Arg | Leu | Arg | Val | Phe | Asn | Trp | Ile | Pro | Arg | Arg | Ser | | |
| | | 260 | | | | | 265 | | | | | 270 | | | | | |
| atc | tgg | gaa | gag | gca | aag | ccc | aag | gag | att | acc | aat | tta | tac | acc | atc | 919 | |
| Ile | Trp | Glu | Glu | Ala | Lys | Pro | Lys | Glu | Ile | Thr | Asn | Leu | Tyr | Thr | Ile | | |
| | 275 | | | | | 280 | | | | | 285 | | | | | | |
| act | gcc | ttg | gcc | tgg | aag | cgg | gat | ggc | tca | cgg | ctc | tgt | gtg | ggc | aca | 967 | |
| Thr | Ala | Leu | Ala | Trp | Lys | Arg | Asp | Gly | Ser | Arg | Leu | Cys | Val | Gly | Thr | | |
| 290 | | | | | 295 | | | | | 300 | | | | | 305 | | |
| cta | tgt | ggt | ggg | gtg | gaa | cag | ttt | gac | tgc | tgc | ctc | cga | agg | agt | att | 1015 | |
| Leu | Cys | Gly | Gly | Val | Glu | Gln | Phe | Asp | Cys | Cys | Leu | Arg | Arg | Ser | Ile | | |
| | | | | 310 | | | | | 315 | | | | | 320 | | | |
| tac | aag | aac | aag | ttt | gag | ttg | acg | tat | gtg | gga | cct | agc | cag | gtg | att | 1063 | |
| Tyr | Lys | Asn | Lys | Phe | Glu | Leu | Thr | Tyr | Val | Gly | Pro | Ser | Gln | Val | Ile | | |
| | | | 325 | | | | | 330 | | | | | 335 | | | | |
| gtg | aag | aac | ctg | tca | tca | gga | acc | cga | gtg | gtg | ctc | aag | tca | cac | tat | 1111 | |
| Val | Lys | Asn | Leu | Ser | Ser | Gly | Thr | Arg | Val | Val | Leu | Lys | Ser | His | Tyr | | |
| | | | 340 | | | | 345 | | | | | 350 | | | | | |
| ggc | tat | gag | gtg | gaa | gag | gtg | aaa | atc | cta | gga | aag | gaa | cgt | tac | ttg | 1159 | |
| Gly | Tyr | Glu | Val | Glu | Glu | Val | Lys | Ile | Leu | Gly | Lys | Glu | Arg | Tyr | Leu | | |
| | 355 | | | | | 360 | | | | | 365 | | | | | | |
| gtg | gct | cac | aca | tca | gaa | aca | ctg | ctg | ctg | ggg | gac | ctg | aac | act | aat | 1207 | |
| Val | Ala | His | Thr | Ser | Glu | Thr | Leu | Leu | Leu | Gly | Asp | Leu | Asn | Thr | Asn | | |
| 370 | | | | | 375 | | | | | 380 | | | | | 385 | | |
| cgg | ctt | agt | gag | ata | gcc | tgg | caa | gga | tct | ggt | ggc | aat | gag | aag | tat | 1255 | |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Leu | Ser | Glu | Ile | Ala | Trp | Gln | Gly | Ser | Gly | Gly | Asn | Glu | Lys | Tyr | |
| | | | | 390 | | | | | 395 | | | | | 400 | | |
| ttc | ttt | gaa | aat | gag | aat | gta | tgc | atg | atc | ttc | aat | gcc | gga | gag | cta | 1303 |
| Phe | Phe | Glu | Asn | Glu | Asn | Val | Cys | Met | Ile | Phe | Asn | Ala | Gly | Glu | Leu | |
| | | | 405 | | | | | 410 | | | | | 415 | | | |
| acc | ctg | gtg | gaa | tat | ggg | aat | aat | gac | acc | ctg | ggt | tct | gta | cgc | act | 1351 |
| Thr | Leu | Val | Glu | Tyr | Gly | Asn | Asn | Asp | Thr | Leu | Gly | Ser | Val | Arg | Thr | |
| | | 420 | | | | | 425 | | | | | 430 | | | | |
| gaa | ttc | atg | aac | ccc | cac | ctc | atc | agt | gtt | cgt | att | aat | gag | agg | tgt | 1399 |
| Glu | Phe | Met | Asn | Pro | His | Leu | Ile | Ser | Val | Arg | Ile | Asn | Glu | Arg | Cys | |
| | 435 | | | | | 440 | | | | | 445 | | | | | |
| cag | cga | gga | aca | gaa | gat | aat | aag | aaa | ttg | gct | tat | ctt | att | gat | att | 1447 |
| Gln | Arg | Gly | Thr | Glu | Asp | Asn | Lys | Lys | Leu | Ala | Tyr | Leu | Ile | Asp | Ile | |
| 450 | | | | | 455 | | | | | 460 | | | | | 465 | |
| aag | act | att | gct | ata | gtg | gat | ctg | att | ggt | ggc | tac | aac | att | ggc | acc | 1495 |
| Lys | Thr | Ile | Ala | Ile | Val | Asp | Leu | Ile | Gly | Gly | Tyr | Asn | Ile | Gly | Thr | |
| | | | 470 | | | | | 475 | | | | | | 480 | | |
| gtc | agc | cat | gag | agc | cgt | gtg | gat | tgg | ctg | gaa | ctt | aat | gag | act | gga | 1543 |
| Val | Ser | His | Glu | Ser | Arg | Val | Asp | Trp | Leu | Glu | Leu | Asn | Glu | Thr | Gly | |
| | | | 485 | | | | | 490 | | | | | 495 | | | |
| cac | aag | ctc | ctc | ttc | agg | gac | cgg | aaa | ctt | cgt | ttg | cat | ctg | tat | gat | 1591 |
| His | Lys | Leu | Leu | Phe | Arg | Asp | Arg | Lys | Leu | Arg | Leu | His | Leu | Tyr | Asp | |
| | | 500 | | | | | 505 | | | | | 510 | | | | |
| att | gaa | agc | tgc | tct | aag | aca | atg | atc | ctc | aac | ttc | tgc | tcc | tat | atg | 1639 |
| Ile | Glu | Ser | Cys | Ser | Lys | Thr | Met | Ile | Leu | Asn | Phe | Cys | Ser | Tyr | Met | |
| | 515 | | | | | 520 | | | | | 525 | | | | | |
| cag | tgg | gtc | cca | gga | agt | gac | gtg | ctg | gta | gct | cag | aac | cga | aac | agt | 1687 |
| Gln | Trp | Val | Pro | Gly | Ser | Asp | Val | Leu | Val | Ala | Gln | Asn | Arg | Asn | Ser | |
| 530 | | | | | 535 | | | | | 540 | | | | | 545 | |
| ctg | tgt | gta | tgg | tac | aac | att | gag | gca | cct | gag | aga | gtc | acc | atg | ttc | 1735 |
| Leu | Cys | Val | Trp | Tyr | Asn | Ile | Glu | Ala | Pro | Glu | Arg | Val | Thr | Met | Phe | |
| | | | 550 | | | | | 555 | | | | | | 560 | | |
| act | att | agg | ggt | gat | gtt | ata | ggt | ctg | gag | cgg | ggc | ggg | gga | aag | acc | 1783 |
| Thr | Ile | Arg | Gly | Asp | Val | Ile | Gly | Leu | Glu | Arg | Gly | Gly | Gly | Lys | Thr | |
| | | | 565 | | | | 570 | | | | | 575 | | | | |
| gag | gtg | atg | gtg | atg | gaa | ggt | gtg | act | act | gtt | gcc | tac | aca | ttg | gat | 1831 |
| Glu | Val | Met | Val | Met | Glu | Gly | Val | Thr | Thr | Val | Ala | Tyr | Thr | Leu | Asp | |
| | | 580 | | | | 585 | | | | | 590 | | | | | |
| gag | ggc | ctc | atc | gag | ttt | gga | aca | gcc | att | gat | gat | ggc | aac | tac | atc | 1879 |
| Glu | Gly | Leu | Ile | Glu | Phe | Gly | Thr | Ala | Ile | Asp | Asp | Gly | Asn | Tyr | Ile | |
| | 595 | | | | | 600 | | | | 605 | | | | | | |
| cgg | gca | aca | gcc | ttc | tta | gag | act | ctg | gaa | atg | acc | cca | gaa | aca | gag | 1927 |
| Arg | Ala | Thr | Ala | Phe | Leu | Glu | Thr | Leu | Glu | Met | Thr | Pro | Glu | Thr | Glu | |
| 610 | | | | | 615 | | | | | 620 | | | | | 625 | |
| gca | atg | tgg | aaa | acc | ttg | agt | aaa | ctg | gca | cta | gag | gca | agg | caa | cta | 1975 |
| Ala | Met | Trp | Lys | Thr | Leu | Ser | Lys | Leu | Ala | Leu | Glu | Ala | Arg | Gln | Leu | |
| | | | 630 | | | | | 635 | | | | | 640 | | | |
| cac | att | gcg | gag | agg | tgc | ttt | tct | gct | ttg | ggc | caa | gta | gca | aaa | gct | 2023 |

| | |
|---|------|
| His Ile Ala Glu Arg Cys Phe Ser Ala Leu Gly Gln Val Ala Lys Ala | |
| 645 650 655 | |
| cga ttc ctg cat gag acc aat gag att gca gat caa gta tcc cgg gaa | 2071 |
| Arg Phe Leu His Glu Thr Asn Glu Ile Ala Asp Gln Val Ser Arg Glu | |
| 660 665 670 | |
| tat ggc gga gaa gga aca gac ttt tat cag gtc cga gca cgt cta gcc | 2119 |
| Tyr Gly Gly Glu Gly Thr Asp Phe Tyr Gln Val Arg Ala Arg Leu Ala | |
| 675 680 685 | |
| atg ctg gaa aag aac tac aaa ctg gct gaa atg atc ttt ttg gaa cag | 2167 |
| Met Leu Glu Lys Asn Tyr Lys Leu Ala Glu Met Ile Phe Leu Glu Gln | |
| 690 695 700 705 | |
| aat gct gtg gag gag gcc atg ggc atg tac cag gag cta cac cgt tgg | 2215 |
| Asn Ala Val Glu Glu Ala Met Gly Met Tyr Gln Glu Leu His Arg Trp | |
| 710 715 720 | |
| gat gag tgt atc gct gtg gct gaa gcc aag ggg cac cca gcc ctg gag | 2263 |
| Asp Glu Cys Ile Ala Val Ala Glu Ala Lys Gly His Pro Ala Leu Glu | |
| 725 730 735 | |
| aag cta cgt cgt agt tac tac cag tgg ctg atg gac aca cag caa gag | 2311 |
| Lys Leu Arg Arg Ser Tyr Tyr Gln Trp Leu Met Asp Thr Gln Gln Glu | |
| 740 745 750 | |
| gag cga gca ggt gaa cta cag gag agc caa ggg gat ggg cta gca gcc | 2359 |
| Glu Arg Ala Gly Glu Leu Gln Glu Ser Gln Gly Asp Gly Leu Ala Ala | |
| 755 760 765 | |
| atc agc ctc tac ctc aaa gct ggg ctc cct gcc aaa gct gct cgg ctg | 2407 |
| Ile Ser Leu Tyr Leu Lys Ala Gly Leu Pro Ala Lys Ala Ala Arg Leu | |
| 770 775 780 785 | |
| gtg ctg acc cga gag gaa ctg cta gcc aac aca gag ctg gta gaa cac | 2455 |
| Val Leu Thr Arg Glu Glu Leu Leu Ala Asn Thr Glu Leu Val Glu His | |
| 790 795 800 | |
| atc act gca gcc ctt atc aag ggg gaa ctc tac gaa agg gca ggt gat | 2503 |
| Ile Thr Ala Ala Leu Ile Lys Gly Glu Leu Tyr Glu Arg Ala Gly Asp | |
| 805 810 815 | |
| ctc ttt gag aag att cac aat cca cag aag gcc ctg gag tgc tac cgt | 2551 |
| Leu Phe Glu Lys Ile His Asn Pro Gln Lys Ala Leu Glu Cys Tyr Arg | |
| 820 825 830 | |
| aaa ggc aac gca ttc atg aaa gcg gta gag ctg gct cga ttg gcc ttc | 2599 |
| Lys Gly Asn Ala Phe Met Lys Ala Val Glu Leu Ala Arg Leu Ala Phe | |
| 835 840 845 | |
| cca gtg gag gtg gtg aaa cta gag gag gca tgg ggg gac cac ctg gtg | 2647 |
| Pro Val Glu Val Val Lys Leu Glu Glu Ala Trp Gly Asp His Leu Val | |
| 850 855 860 865 | |
| cag cag aag cag ctt gat gca gcc att aat cac tac atc gaa gcc agg | 2695 |
| Gln Gln Lys Gln Leu Asp Ala Ala Ile Asn His Tyr Ile Glu Ala Arg | |
| 870 875 880 | |
| tgc tcc att aag gca att gag gcc gcc ctg ggt gcc cgc cag tgg aag | 2743 |
| Cys Ser Ile Lys Ala Ile Glu Ala Ala Leu Gly Ala Arg Gln Trp Lys | |
| 885 890 895 | |
| aag gca att tat ata tta gat cta cag gac cgg aac act gca tcc aaa | 2791 |

| | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|
| Lys | Ala | Ile | Tyr | Ile | Leu | Asp | Leu | Gln | Asp | Arg | Asn | Thr | Ala | Ser | Lys | |
| | | 900 | | | | | 905 | | | | | 910 | | | | |
| tac | tat | cct | ctc | gtg | gcc | caa | cac | tat | gca | tcc | ctg | cag | gag | tat | gag | 2839 |
| Tyr | Tyr | Pro | Leu | Val | Ala | Gln | His | Tyr | Ala | Ser | Leu | Gln | Glu | Tyr | Glu | |
| | | 915 | | | | 920 | | | | | 925 | | | | | |
| att | gct | gag | gag | ctc | tat | act | aag | gga | gat | cgg | aca | aaa | gat | gcc | ata | 2887 |
| Ile | Ala | Glu | Glu | Leu | Tyr | Thr | Lys | Gly | Asp | Arg | Thr | Lys | Asp | Ala | Ile | |
| 930 | | | | | 935 | | | | 940 | | | | | 945 | | |
| gac | atg | tac | acc | cag | gct | ggg | cgt | tgg | gaa | caa | gcc | cac | aag | ctg | gcg | 2935 |
| Asp | Met | Tyr | Thr | Gln | Ala | Gly | Arg | Trp | Glu | Gln | Ala | His | Lys | Leu | Ala | |
| | | | | 950 | | | | | 955 | | | | | 960 | | |
| atg | aaa | tgc | atg | aga | cca | gaa | gat | gtg | tca | gtg | cta | tac | atc | act | cag | 2983 |
| Met | Lys | Cys | Met | Arg | Pro | Glu | Asp | Val | Ser | Val | Leu | Tyr | Ile | Thr | Gln | |
| | | | 965 | | | | | 970 | | | | | 975 | | | |
| gcc | cag | gaa | atg | gag | aag | cag | ggc | aag | tac | cgt | gag | gct | gaa | agg | cta | 3031 |
| Ala | Gln | Glu | Met | Glu | Lys | Gln | Gly | Lys | Tyr | Arg | Glu | Ala | Glu | Arg | Leu | |
| | | 980 | | | | | 985 | | | | | 990 | | | | |
| tat | gtg | aca | gta | caa | gag | cct | gat | ctt | gcc | atc | acc | atg | tac | aaa | aag | 3079 |
| Tyr | Val | Thr | Val | Gln | Glu | Pro | Asp | Leu | Ala | Ile | Thr | Met | Tyr | Lys | Lys | |
| | 995 | | | | | 1000 | | | | | 1005 | | | | | |
| cac | aag | ttg | tat | gat | gac | atg | atc | cgc | ctg | gta | ggg | aag | cac | cat | cca | 3127 |
| His | Lys | Leu | Tyr | Asp | Asp | Met | Ile | Arg | Leu | Val | Gly | Lys | His | His | Pro | |
| 1010 | | | | 1015 | | | | | 1020 | | | | | 1025 | | |
| gat | ctc | ctc | agt | gat | aca | cac | cta | cat | ctg | ggc | aag | gag | ctg | gag | gct | 3175 |
| Asp | Leu | Leu | Ser | Asp | Thr | His | Leu | His | Leu | Gly | Lys | Glu | Leu | Glu | Ala | |
| | | | 1030 | | | | | 1035 | | | | | 1040 | | | |
| gaa | ggc | cga | cta | cag | gag | gct | gag | tac | cac | tac | ctc | gag | gcc | cag | gaa | 3223 |
| Glu | Gly | Arg | Leu | Gln | Glu | Ala | Glu | Tyr | His | Tyr | Leu | Glu | Ala | Gln | Glu | |
| | | 1045 | | | | 1050 | | | | | | 1055 | | | | |
| tgg | aag | gca | aca | gtg | aac | atg | tac | cgg | gcc | agt | ggg | ctt | tgg | gaa | gag | 3271 |
| Trp | Lys | Ala | Thr | Val | Asn | Met | Tyr | Arg | Ala | Ser | Gly | Leu | Trp | Glu | Glu | |
| | 1060 | | | | | 1065 | | | | | 1070 | | | | | |
| gcc | tac | agg | gtg | gcc | aga | act | caa | gga | ggg | gct | aat | gcc | cac | aaa | cac | 3319 |
| Ala | Tyr | Arg | Val | Ala | Arg | Thr | Gln | Gly | Gly | Ala | Asn | Ala | His | Lys | His | |
| | 1075 | | | | 1080 | | | | | 1085 | | | | | | |
| gtg | gcc | tat | ctg | tgg | gca | aag | agc | ctg | gga | gga | gag | gct | gca | gtt | aga | 3367 |
| Val | Ala | Tyr | Leu | Trp | Ala | Lys | Ser | Leu | Gly | Gly | Glu | Ala | Ala | Val | Arg | |
| 1090 | | | | 1095 | | | | | 1100 | | | | 1105 | | | |
| ctg | ctt | aat | aag | ctg | gga | ctc | ctg | gaa | gct | gct | gtt | gac | cac | gct | gca | 3415 |
| Leu | Leu | Asn | Lys | Leu | Gly | Leu | Leu | Glu | Ala | Ala | Val | Asp | His | Ala | Ala | |
| | | | 1110 | | | | | 1115 | | | | 1120 | | | | |
| gac | aat | tgc | tcc | ttt | gaa | ttt | gcg | ttt | gaa | ctc | tct | cgg | ctg | gcc | ctc | 3463 |
| Asp | Asn | Cys | Ser | Phe | Glu | Phe | Ala | Phe | Glu | Leu | Ser | Arg | Leu | Ala | Leu | |
| | | 1125 | | | | | 1130 | | | | | 1135 | | | | |
| aag | cac | aaa | acc | ccc | gag | gtt | cat | ctc | aaa | tat | gct | atg | ttc | ctg | gag | 3511 |
| Lys | His | Lys | Thr | Pro | Glu | Val | His | Leu | Lys | Tyr | Ala | Met | Phe | Leu | Glu | |
| | | 1140 | | | | 1145 | | | | | 1150 | | | | | |
| gat | gag | ggt | aaa | ttc | gaa | gag | gct | gaa | gct | gaa | ttc | atc | aga | gct | ggt | 3559 |

| | |
|---|------|
| Asp Glu Gly Lys Phe Glu Glu Ala Glu Ala Glu Phe Ile Arg Ala Gly | |
| 1155 1160 1165 | |
| aaa ccc aag gag gca gtc ctc atg ttt gtc cat aac cag gat tgg gag | 3607 |
| Lys Pro Lys Glu Ala Val Leu Met Phe Val His Asn Gln Asp Trp Glu | |
| 1170 1175 1180 1185 | |
| gca gct cag cgt gtg gct gag gct cac gac cct gac agt gtc gcc gag | 3655 |
| Ala Ala Gln Arg Val Ala Glu Ala His Asp Pro Asp Ser Val Ala Glu | |
| 1190 1195 1200 | |
| gtg ctt gtg gga cag gcc cgg ggg gcc ttg gag gag aag gac ttt cag | 3703 |
| Val Leu Val Gly Gln Ala Arg Gly Ala Leu Glu Glu Lys Asp Phe Gln | |
| 1205 1210 1215 | |
| aaa gca gaa ggg ctg ctg ctc cgg gcc cag aga cca ggc ctg gcc ctc | 3751 |
| Lys Ala Glu Gly Leu Leu Leu Arg Ala Gln Arg Pro Gly Leu Ala Leu | |
| 1220 1225 1230 | |
| aat tat tat aag gag gct gga tta tgg agt gac gct ctg cgc atc tgc | 3799 |
| Asn Tyr Tyr Lys Glu Ala Gly Leu Trp Ser Asp Ala Leu Arg Ile Cys | |
| 1235 1240 1245 | |
| aag gac tat gtg ccc agc cag ctg gag gct ctg cag gaa gaa tat gag | 3847 |
| Lys Asp Tyr Val Pro Ser Gln Leu Glu Ala Leu Gln Glu Glu Tyr Glu | |
| 1250 1255 1260 1265 | |
| cgg gaa gct act aag aag ggg gcc agg ggt gtg gag gga ttt gtg gaa | 3895 |
| Arg Glu Ala Thr Lys Lys Gly Ala Arg Gly Val Glu Gly Phe Val Glu | |
| 1270 1275 1280 | |
| caa gct cga cac tgg gag cag gct gga gag tac agc cgt gcc gtg gac | 3943 |
| Gln Ala Arg His Trp Glu Gln Ala Gly Glu Tyr Ser Arg Ala Val Asp | |
| 1285 1290 1295 | |
| tgc tac ctc aaa gtg cga gac tct gga aac agc ggc ctg gcg gag aag | 3991 |
| Cys Tyr Leu Lys Val Arg Asp Ser Gly Asn Ser Gly Leu Ala Glu Lys | |
| 1300 1305 1310 | |
| tgc tgg atg aag gca gct gaa ctc tcc atc aag ttt ctg cct ccc caa | 4039 |
| Cys Trp Met Lys Ala Ala Glu Leu Ser Ile Lys Phe Leu Pro Pro Gln | |
| 1315 1320 1325 | |
| cgt aat atg gaa gtc gtt ctg gct gta gga ccc cag ctg att gga att | 4087 |
| Arg Asn Met Glu Val Val Leu Ala Val Gly Pro Gln Leu Ile Gly Ile | |
| 1330 1335 1340 1345 | |
| gga aag cac agt gca gct gca gag ctc tat ctg aat ctg gac ctt gtc | 4135 |
| Gly Lys His Ser Ala Ala Ala Glu Leu Tyr Leu Asn Leu Asp Leu Val | |
| 1350 1355 1360 | |
| aag gaa gca atc gat gct ttc atc gag ggt gag gag tgg aac aag gcg | 4183 |
| Lys Glu Ala Ile Asp Ala Phe Ile Glu Gly Glu Glu Trp Asn Lys Ala | |
| 1365 1370 1375 | |
| aag cgt gta gct aag gag tta gat ccc agg tat gaa gac tat gtg gac | 4231 |
| Lys Arg Val Ala Lys Glu Leu Asp Pro Arg Tyr Glu Asp Tyr Val Asp | |
| 1380 1385 1390 | |
| cag cat tat aaa gag ttc ctc aag aat cag ggc aaa gtg gac tcg ctg | 4279 |
| Gln His Tyr Lys Glu Phe Leu Lys Asn Gln Gly Lys Val Asp Ser Leu | |
| 1395 1400 1405 | |
| gtg ggt gtg gat gtg ata gct gct ttg gac ctg tat gtg gag cag ggc | 4327 |

2221

Glu Arg Gly Ala Tyr Glu Ala Ser Leu Val Ala Ala Ser Thr Gly Val
 1670 1675 1680

cga gcc ctg ccc tgc ctt att aca gga tac ccc att ctg agg aac aaa 5143
 Arg Ala Leu Pro Cys Leu Ile Thr Gly Tyr Pro Ile Leu Arg Asn Lys
 1685 1690 1695

att gaa ttt aag cgg cca ggg aag gct gct aac aag gac aac tgg aat 5191
 Ile Glu Phe Lys Arg Pro Gly Lys Ala Ala Asn Lys Asp Asn Trp Asn
 1700 1705 1710

aaa ttc ctt atg gcc atc aag acc tcc cac agc cca gtg tgc cag gac 5239
 Lys Phe Leu Met Ala Ile Lys Thr Ser His Ser Pro Val Cys Gln Asp
 1715 1720 1725

gtg ctg aaa ttc atc agt cag tgg tgt gga ggg ctc ccc agc acc agc 5287
 Val Leu Lys Phe Ile Ser Gln Trp Cys Gly Gly Leu Pro Ser Thr Ser
 1730 1735 1740 1745

ttt tcc ttt cag tag ttggtagagc tgaggaagag ttagggcctc tccctcatta 5342
 Phe Ser Phe Gln *
 1750

aagttttata aat 5355

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 Met Asn Glu Ala Lys
 1 5

gtg aag gag acg ctg cgg cgc tgt ggg gcc agc ggg gat gag tgt ggc 102
 Val Lys Glu Thr Leu Arg Arg Cys Gly Ala Ser Gly Asp Glu Cys Gly
 10 15 20

cgt ctg cag tat gcc ctc acc tgc ctg cgg aag gtg aca ggc ctg gga 150
 Arg Leu Gln Tyr Ala Leu Thr Cys Leu Arg Lys Val Thr Gly Leu Gly
 25 30 35

ggg gag cac aag gag gac tcc agt tgg agt tca ttg gat gcg cgg cgg 198
 Gly Glu His Lys Glu Asp Ser Ser Trp Ser Ser Leu Asp Ala Arg Arg
 40 45 50

gaa agt ggc tca ggg cct tcc acg gac acc ctc tca gca gcc agc ctg 246
 Glu Ser Gly Ser Gly Pro Ser Thr Asp Thr Leu Ser Ala Ala Ser Leu
 55 60 65

ccc tgg ccc cca ggg agc tcc cag ctg ggc aga gca ggc aac agc gcc 294
 Pro Trp Pro Pro Gly Ser Ser Gln Leu Gly Arg Ala Gly Asn Ser Ala
 70 75 80 85

cag ggc cca cgc tcc atc tcc gtg tca gct ctg ccc gcc tca gac tcc 342
 Gln Gly Pro Arg Ser Ile Ser Val Ser Ala Leu Pro Ala Ser Asp Ser

2223

| 345 | 350 | 355 | |
|---|-----|-----|------|
| cat cat aga cag cag ttt atc ttt cca gac att tca gcc ttt gca cac His His Arg Gln Gln Phe Ile Phe Pro Asp Ile Ser Ala Phe Ala His 360 365 370 | | | 1158 |
| gca gcc ccg ctc cct gaa gct gcc gac ggt acc cgg ctc gat gac cag Ala Ala Pro Leu Pro Glu Ala Ala Asp Gly Thr Arg Leu Asp Asp Gln 375 380 385 | | | 1206 |
| ccg aaa gca gat gtg ttg gaa gct cac gaa gcg gag gct gag gag cca Pro Lys Ala Asp Val Leu Glu Ala His Glu Ala Glu Ala Glu Glu Pro 390 395 400 405 | | | 1254 |
| gag gct ggc aag tca gag gca gaa gac gat gag gac gag gtg gac gac Glu Ala Gly Lys Ser Glu Ala Glu Asp Asp Glu Asp Glu Val Asp Asp 410 415 420 | | | 1302 |
| ttg ccg agc tct cgc cgg ccc tgg cgg ggc ccc atc tct cgc aag gcc Leu Pro Ser Ser Arg Arg Pro Trp Arg Gly Pro Ile Ser Arg Lys Ala 425 430 435 | | | 1350 |
| agc cag acc agc gtg tac ctg cag gag tgg gac atc ccc ttc gag cag Ser Gln Thr Ser Val Tyr Leu Gln Glu Trp Asp Ile Pro Phe Glu Gln 440 445 450 | | | 1398 |
| gta gag ctg ggc gag ccc atc ggg cag ggc cgc tgg ggc cgg gtg cac Val Glu Leu Gly Glu Pro Ile Gly Gln Gly Arg Trp Gly Arg Val His 455 460 465 | | | 1446 |
| cgc ggc cgc tgg cat ggc gag gtg gcc att cgc ctg ctg gag atg gac Arg Gly Arg Trp His Gly Glu Val Ala Ile Arg Leu Leu Glu Met Asp 470 475 480 485 | | | 1494 |
| ggc cac aac cag gac cac ctg aag ctc ttc aag aaa gag gtg atg aac Gly His Asn Gln Asp His Leu Lys Leu Phe Lys Lys Glu Val Met Asn 490 495 500 | | | 1542 |
| tac cgg cag acg cgg cat gag aac gtg gtg ctc ttc atg ggg gcc tgc Tyr Arg Gln Thr Arg His Glu Asn Val Val Leu Phe Met Gly Ala Cys 505 510 515 | | | 1590 |
| atg aac ccg ccc cac ctg gcc att atc acc agc ttc tgc aag ggg cgg Met Asn Pro Pro His Leu Ala Ile Ile Thr Ser Phe Cys Lys Gly Arg 520 525 530 | | | 1638 |
| acg ttg cac tcg ttt gtg agg gac ccc aag acg tct ctg gac atc aac Thr Leu His Ser Phe Val Arg Asp Pro Lys Thr Ser Leu Asp Ile Asn 535 540 545 | | | 1686 |
| aag acg agg caa atc gct cag gag atc atc aag ggc atg gga tat ctt Lys Thr Arg Gln Ile Ala Gln Glu Ile Ile Lys Gly Met Gly Tyr Leu 550 555 560 565 | | | 1734 |
| cat gcc aag ggc atc gta cac aaa gat ctc aaa tct aag aac gtc ttc His Ala Lys Gly Ile Val His Lys Asp Leu Lys Ser Lys Asn Val Phe 570 575 580 | | | 1782 |
| tat gac aac ggc aag gtg gtc atc aca gac ttc ggg ctg ttt ggg atc Tyr Asp Asn Gly Lys Val Val Ile Thr Asp Phe Gly Leu Phe Gly Ile 585 590 595 | | | 1830 |
| tca ggc gtg gtc cga gag gga cgg cgt gag aac cag cta aag ctg tcc Ser Gly Val Val Arg Glu Gly Arg Arg Glu Asn Gln Leu Lys Leu Ser 600 605 610 615 | | | 1878 |

| 600 | 605 | 610 | |
|-------------------------|--|------|-----|
| cac gac tgg ctg tgc tat | ctg gcc cct gag att gta cgc gag atg acc | 1926 | |
| His Asp Trp Leu Cys Tyr | Leu Ala Pro Glu Ile Val Arg Glu Met Thr | | |
| 615 | 620 | 625 | |
| ccc ggg aag gac gag gat | cag ctg cca ttc tcc aaa gct gct gat gtc | 1974 | |
| Pro Gly Lys Asp Glu Asp | Gln Leu Pro Phe Ser Lys Ala Ala Asp Val | | |
| 630 | 635 | 640 | 645 |
| tat gca ttt ggg act gtt | tgg tat gag ctg caa gca aga gac tgg ccc | 2022 | |
| Tyr Ala Phe Gly Thr Val | Trp Tyr Glu Leu Gln Ala Arg Asp Trp Pro | | |
| 650 | 655 | 660 | |
| ttg aag aac cag gct gca | gag gca tcc atc tgg cag att gga agc ggg | 2070 | |
| Leu Lys Asn Gln Ala Ala | Glu Ala Ser Ile Trp Gln Ile Gly Ser Gly | | |
| 665 | 670 | 675 | |
| gaa gga atg aag cgt gtc | ctg act tct gtc agc ttg ggg aag gaa gtc | 2118 | |
| Glu Gly Met Lys Arg Val | Leu Thr Ser Val Ser Leu Gly Lys Glu Val | | |
| 680 | 685 | 690 | |
| agt gag atc ctg tgc gcc | tgc tgg gct ttc gac ctg cag gag aga ccc | 2166 | |
| Ser Glu Ile Leu Ser Ala | Cys Trp Ala Phe Asp Leu Gln Glu Arg Pro | | |
| 695 | 700 | 705 | |
| agc ttc agc ctg ctg atg | gac atg ctg gag aaa ctt ccc aag ctg aac | 2214 | |
| Ser Phe Ser Leu Leu Met | Asp Met Leu Glu Lys Leu Pro Lys Leu Asn | | |
| 710 | 715 | 720 | 725 |
| cgg cgg ctc tcc cac cct | gga cac ttc tgg aag tca gct gac att aac | 2262 | |
| Arg Arg Leu Ser His Pro | Gly His Phe Trp Lys Ser Ala Asp Ile Asn | | |
| 730 | 735 | 740 | |
| agc agc aaa gtt gta ccc | cgg ttt gaa agg ttt ggc ttg ggc gtc ctg | 2310 | |
| Ser Ser Lys Val Val Pro | Arg Phe Glu Arg Phe Gly Leu Gly Val Leu | | |
| 745 | 750 | 755 | |
| gag tcc agt aat cca aag | atg tag ccagccatat gggtttttcgc tgctgatctc | 2364 | |
| Glu Ser Ser Asn Pro Lys | Met * | | |
| 760 | 765 | | |
| tttcttttta aaatgtgttt | ctgaaacatc ccaacaacca ccacgacaaa aaaacactgc | 2424 | |
| ctgcccagcg ctgcaaacca | ggagcacacg tcctagattc agactgttgg ccataaacc | 2484 | |
| cactcgggag atggagctgc | acctgctatt tcttaaaatg acaccaccaa caaccaaacc | 2544 | |
| tgatcatgaca gacagcaa | at gtttacacgt atatttctcc tgagtgaacc tgatgtttta | 2604 | |
| caataggtaa taataaaa | ac agtctgtgca gatgcaaaaa aaaaaaaaaa aaaaaa | 2660 | |

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<213> Homo sapiens

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ctggacactg cgccaggaat cctaaaacca aaatattaga acgaaaacag aaac atg 117
Met
1
gct cac tat att aca ttt ctc tgc atg gtt ttg gtg ctg ctt ctt cag 165
Ala His Tyr Ile Thr Phe Leu Cys Met Val Leu Val Leu Leu Leu Gln
5 10 15
aat tct gtg tta gct gaa gat ggg gaa gta aga tca agt tgt cgt act 213
Asn Ser Val Leu Ala Glu Asp Gly Glu Val Arg Ser Ser Cys Arg Thr
20 25 30
gct ccg aca gat tta gtt ttc atc tta gat ggc tct tat agt gtt ggc 261
Ala Pro Thr Asp Leu Val Phe Ile Leu Asp Gly Ser Tyr Ser Val Gly
35 40 45
cca gaa aac ttt gaa ata gtg aaa aag tgg ctt gtc aat atc aca aaa 309
Pro Glu Asn Phe Glu Ile Val Lys Lys Trp Leu Val Asn Ile Thr Lys
50 55 60 65
aac ttt gac ata ggg ccg aag ttt att caa gtt gga gtg gtt caa tat 357
Asn Phe Asp Ile Gly Pro Lys Phe Ile Gln Val Gly Val Val Gln Tyr
70 75 80
agt gac tac cct gtg ctg gag att cct ctc gga agc tat gat tca gga 405
Ser Asp Tyr Pro Val Leu Glu Ile Pro Leu Gly Ser Tyr Asp Ser Gly
85 90 95
gaa cat ttg acg gca gca gtg gaa tcc ata ctc tac tta gga gga aac 453
Glu His Leu Thr Ala Ala Val Glu Ser Ile Leu Tyr Leu Gly Gly Asn
100 105 110
aca aag aca ggg aag gcc atc cag ttt gcg ctc gat tac ctt ttt gcc 501
Thr Lys Thr Gly Lys Ala Ile Gln Phe Ala Leu Asp Tyr Leu Phe Ala
115 120 125
aag tcc tca cga ttt ctg act aag ata gca gtg gta ctt acg gat ggc 549
Lys Ser Ser Arg Phe Leu Thr Lys Ile Ala Val Val Leu Thr Asp Gly
130 135 140 145
aag tcc caa gat gac gtc aag gat gca gct caa gca gca aga gat agt 597
Lys Ser Gln Asp Asp Val Lys Asp Ala Ala Gln Ala Ala Arg Asp Ser
150 155 160
aag ata aca tta ttt gct att ggt gtt ggt tca gaa aca gaa gat gcc 645
Lys Ile Thr Leu Phe Ala Ile Gly Val Gly Ser Glu Thr Glu Asp Ala
165 170 175
gaa ctt aga gct att gcc aac aag cct tcg tct act tat gtg ttt tat 693
Glu Leu Arg Ala Ile Ala Asn Lys Pro Ser Ser Thr Tyr Val Phe Tyr
180 185 190
gtg gaa gac tat att gca ata tcc aaa ata agg gaa gtg atg aag cag 741
Val Glu Asp Tyr Ile Ala Ile Ser Lys Ile Arg Glu Val Met Lys Gln
195 200 205
aaa ctt tgt gaa gaa tct gtc tgt cca aca cga att cca gtg gca gct 789
Lys Leu Cys Glu Glu Ser Val Cys Pro Thr Arg Ile Pro Val Ala Ala
210 215 220 225
cgt gat gaa agg gga ttt gat att ctt tta ggt tta gat gta aat aaa 837

| | | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|-----|-----|-----|-----|-----|-----|--|------|
| Arg | Asp | Glu | Arg | Gly | Phe | Asp | Ile | Leu | Leu | Gly | Leu | Asp | Val | Asn | Lys | | |
| | | | | 230 | | | | | 235 | | | | | 240 | | | |
| aag | gtt | aag | aaa | aga | ata | cag | ctt | tca | cca | aaa | aag | ata | aaa | gga | tat | | 885 |
| Lys | Val | Lys | Lys | Arg | Ile | Gln | Leu | Ser | Pro | Lys | Lys | Ile | Lys | Gly | Tyr | | |
| | | | 245 | | | | 250 | | | | | | 255 | | | | |
| gaa | gta | aca | tca | aaa | gtt | gat | tta | tca | gaa | ctc | aca | agc | aat | gtt | ttc | | 933 |
| Glu | Val | Thr | Ser | Lys | Val | Asp | Leu | Ser | Glu | Leu | Thr | Ser | Asn | Val | Phe | | |
| | | 260 | | | | | 265 | | | | | 270 | | | | | |
| cca | gaa | ggt | ctt | cct | cca | tca | tat | gta | ttt | gtg | tct | act | caa | aga | ttt | | 981 |
| Pro | Glu | Gly | Leu | Pro | Pro | Ser | Tyr | Val | Phe | Val | Ser | Thr | Gln | Arg | Phe | | |
| | 275 | | | | | 280 | | | | 285 | | | | | | | |
| aaa | gtc | aag | aaa | att | tgg | gat | tta | tgg | aga | ata | tta | act | att | gat | gga | | 1029 |
| Lys | Val | Lys | Lys | Ile | Trp | Asp | Leu | Trp | Arg | Ile | Leu | Thr | Ile | Asp | Gly | | |
| 290 | | | | 295 | | | | | 300 | | | | | 305 | | | |
| tgc | cac | aaa | tag | cag | ttaccttaaa | tggtgtggac | aaaatcttat | tatttacaac | | | | | | | | | 1084 |
| Cys | His | Lys | * | | | | | | | | | | | | | | |
| aaccagcgta | attaatggct | cacaagtgg | tacctttgct | aaccctcaag | ttaagacgtt | | | | | | | | | | | | 1144 |
| gtttgatgaa | ggctggcacc | aaattcgtct | cttagtaaca | gaacaagatg | tgactttgta | | | | | | | | | | | | 1204 |
| tattgatgac | caacaaattg | aaaacaagcc | cttacatcca | gttttaggga | tcttgatcaa | | | | | | | | | | | | 1264 |
| tgggcaaacc | caaattggaa | aatattctgg | aaaagaagaa | actgttcagt | ttgatgtcca | | | | | | | | | | | | 1324 |
| aaagttgcga | atctactgtg | accagaaca | gaacaaccgg | gagacagcat | gtgagattcc | | | | | | | | | | | | 1384 |
| tggattttgc | cttaatggtc | ccagtgatgt | aggttcaact | ccagctccct | gtatttgtcc | | | | | | | | | | | | 1444 |
| tccgggaaaa | ccaggacttc | aaggcccca | aggtgaccct | ggactgcctg | ggaaccctgg | | | | | | | | | | | | 1504 |
| ctaccctgga | caacctggtc | aagatggtaa | gcctgtgagt | actgaaagct | tagtcatctc | | | | | | | | | | | | 1564 |
| cggatatatct | gggattacag | gatatcaggg | aattgcaggg | acaccaggtg | ttccaggatc | | | | | | | | | | | | 1624 |
| tccaggaata | caaggagctc | gaggactacc | aggttacaaa | ggagaaccag | ggcgagatgg | | | | | | | | | | | | 1684 |
| tgacaag | | | | | | | | | | | | | | | | | 1691 |

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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(1305)

| | | | | | | | | | | | | | | | | | |
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| <400> | 811 | | | | | | | | | | | | | | | | |
| atg | gat | ttc | aat | ggt | gtt | cag | ttt | gtt | tgc | aga | aac | cta | ctg | aaa | gtg | | 48 |
| Met | Asp | Phe | Asn | Gly | Val | Gln | Phe | Val | Cys | Arg | Asn | Leu | Leu | Lys | Val | | |
| 1 | | | | 5 | | | | 10 | | | | 15 | | | | | |
| agc | atg | ttt | ttg | aac | aca | tta | aca | ccg | aag | ttc | tac | gtg | gcc | cta | aca | | 96 |
| Ser | Met | Phe | Leu | Asn | Thr | Leu | Thr | Pro | Lys | Phe | Tyr | Val | Ala | Leu | Thr | | |

| | 20 | 25 | 30 | |
|---|-----|-----|-----|-----|
| ggc act tcc tca cta ata tca ggg ctt att ttg ata ttt gaa tgg tgg | | | | 144 |
| Gly Thr Ser Ser Leu Ile Ser Gly Leu Ile Leu Ile Phe Glu Trp Trp | | | | |
| | 35 | 40 | 45 | |
| tat ttt cgc aaa tac gga act tca ttc att gaa caa gtc tca gta agc | | | | 192 |
| Tyr Phe Arg Lys Tyr Gly Thr Ser Phe Ile Glu Gln Val Ser Val Ser | | | | |
| | 50 | 55 | 60 | |
| cac ttg cgc ccc ctt ctg gga ggg gtt gac aac aac tct tcc aac aat | | | | 240 |
| His Leu Arg Pro Leu Leu Gly Gly Val Asp Asn Asn Ser Ser Asn Asn | | | | |
| | 65 | 70 | 75 | 80 |
| tct aat tcc agt aac ggg gac tca gat tcc aat agg caa agt gtc tca | | | | 288 |
| Ser Asn Ser Ser Asn Gly Asp Ser Asp Ser Asn Arg Gln Ser Val Ser | | | | |
| | 85 | 90 | 95 | |
| gaa tgc aaa gta tgg cga aat cca cta aat tta ttt agg ggt gct gaa | | | | 336 |
| Glu Cys Lys Val Trp Arg Asn Pro Leu Asn Leu Phe Arg Gly Ala Glu | | | | |
| | 100 | 105 | 110 | |
| tac aat cgg tat act tgg gtg aca gga cga gag cct ctt act tac tat | | | | 384 |
| Tyr Asn Arg Tyr Thr Trp Val Thr Gly Arg Glu Pro Leu Thr Tyr Tyr | | | | |
| | 115 | 120 | 125 | |
| gac atg aat ctc tct gcc caa gac cac cag aca ttc ttt act tgt gac | | | | 432 |
| Asp Met Asn Leu Ser Ala Gln Asp His Gln Thr Phe Phe Thr Cys Asp | | | | |
| | 130 | 135 | 140 | |
| tcg gac cat ctg cgt ccc gca gat gca ata atg cag aaa gcc tgg aga | | | | 480 |
| Ser Asp His Leu Arg Pro Ala Asp Ala Ile Met Gln Lys Ala Trp Arg | | | | |
| | 145 | 150 | 155 | 160 |
| gag aga aac ccc caa gct agg att tct gca gct cat gaa gcc ttg gag | | | | 528 |
| Glu Arg Asn Pro Gln Ala Arg Ile Ser Ala Ala His Glu Ala Leu Glu | | | | |
| | 165 | 170 | 175 | |
| ata aat gag acg aga cac caa tgt ctt ggt gta cat caa aag aag gct | | | | 576 |
| Ile Asn Glu Thr Arg His Gln Cys Leu Gly Val His Gln Lys Lys Ala | | | | |
| | 180 | 185 | 190 | |
| agc aat gtg tgc cag aag act cgg gag gac cag gga agc aaa gcc ctt | | | | 624 |
| Ser Asn Val Cys Gln Lys Thr Arg Glu Asp Gln Gly Ser Lys Ala Leu | | | | |
| | 195 | 200 | 205 | |
| ctg gaa cta caa gca tat gct gat gtt cag gca gtc tta gca aag tat | | | | 672 |
| Leu Glu Leu Gln Ala Tyr Ala Asp Val Gln Ala Val Leu Ala Lys Tyr | | | | |
| | 210 | 215 | 220 | |
| gat gat ata agc tta cca aag tca gca aca ata tgc tac aca gct gct | | | | 720 |
| Asp Asp Ile Ser Leu Pro Lys Ser Ala Thr Ile Cys Tyr Thr Ala Ala | | | | |
| | 225 | 230 | 235 | 240 |
| ttg ctc aaa gca aga gct gtc tct gac aaa ttc tct cct gag gct gca | | | | 768 |
| Leu Leu Lys Ala Arg Ala Val Ser Asp Lys Phe Ser Pro Glu Ala Ala | | | | |
| | 245 | 250 | 255 | |
| tct cgg cgg ggg ctg agc aca gca gag atg aat gca gta gag gcc att | | | | 816 |
| Ser Arg Arg Gly Leu Ser Thr Ala Glu Met Asn Ala Val Glu Ala Ile | | | | |
| | 260 | 265 | 270 | |
| cat aga gct gtg gaa ttc aat cct cat gtg cca aaa tac cta cta gaa | | | | 864 |
| His Arg Ala Val Glu Phe Asn Pro His Val Pro Lys Tyr Leu Leu Glu | | | | |

| 275 | 280 | 285 | |
|---|-----|-----|------|
| atg aaa agc tta atc cta ccc cca gaa cat atc ctg aag aga gga gac | | | 912 |
| Met Lys Ser Leu Ile Leu Pro Pro Glu His Ile Leu Lys Arg Gly Asp | | | |
| 290 | 295 | 300 | |
| agt gaa gca ata gca tat gca ttc ttt cat ctt gca cac tgg aag aga | | | 960 |
| Ser Glu Ala Ile Ala Tyr Ala Phe Phe His Leu Ala His Trp Lys Arg | | | |
| 305 | 310 | 315 | 320 |
| gtg gaa ggg gct ttg aat ctt ttg cat tgt acg tgg gaa ggc act ttt | | | 1008 |
| Val Glu Gly Ala Leu Asn Leu Leu His Cys Thr Trp Glu Gly Thr Phe | | | |
| | 325 | 330 | 335 |
| cgg atg atc cct tat ccc ttg gaa aag ggg cac cta ttt tat cct tac | | | 1056 |
| Arg Met Ile Pro Tyr Pro Leu Glu Lys Gly His Leu Phe Tyr Pro Tyr | | | |
| | 340 | 345 | 350 |
| cca atc tgt aca gaa aca gca gac cga gag ctg ctt cca tct ttc cat | | | 1104 |
| Pro Ile Cys Thr Glu Thr Ala Asp Arg Glu Leu Leu Pro Ser Phe His | | | |
| | 355 | 360 | 365 |
| gaa gtc tca gtt tac cca aag aag gag ctt ccc ttc ttt att ctc ttt | | | 1152 |
| Glu Val Ser Val Tyr Pro Lys Lys Glu Leu Pro Phe Phe Ile Leu Phe | | | |
| | 370 | 375 | 380 |
| act gct gga tta tgt tcc ttc aca gcc atg ctg gcc ctc ctg aca cat | | | 1200 |
| Thr Ala Gly Leu Cys Ser Phe Thr Ala Met Leu Ala Leu Leu Thr His | | | |
| 385 | 390 | 395 | 400 |
| cag ttc ccg gaa ctt atg ggg gtc ttc gca aaa gct gtg agt gtt tgc | | | 1248 |
| Gln Phe Pro Glu Leu Met Gly Val Phe Ala Lys Ala Val Ser Val Cys | | | |
| | 405 | 410 | 415 |
| cta gag gga ggc ctt ggg gaa tgg atg ggg aaa gcc aag ggc ata aaa | | | 1296 |
| Leu Glu Gly Gly Leu Gly Glu Trp Met Gly Lys Ala Lys Gly Ile Lys | | | |
| | 420 | 425 | 430 |
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| Ala Ala * | | | |
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| taaacccgaa aaagaaaatg aagaaaaaga aatacgtgaa ttctggcaca gaccagatc | 180 |
| aacttcactg tggccattga tttcactgcc tccaatggga acccctcaca gtccacatcc | 240 |

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|---|---|-----|
| ctgcactac | atg agc ccc tac cag ctg aac gcc tac gcg ctg gcg ctg | 288 |
| | Met Ser Pro Tyr Gln Leu Asn Ala Tyr Ala Leu Ala Leu | |
| | 1 5 10 | |
| act gcc gtc gga gag atc atc cag cac tac gac agt gac aag atg ttc | 336 | |
| Thr Ala Val Gly Glu Ile Ile Gln His Tyr Asp Ser Asp Lys Met Phe | | |
| 15 20 25 | | |
| cct gcc ctg ggc ttc ggg gcc aag ctg ccc ccg gat ggc aga gtg tcc | 384 | |
| Pro Ala Leu Gly Phe Gly Ala Lys Leu Pro Pro Asp Gly Arg Val Ser | | |
| 30 35 40 45 | | |
| cac gag ttc cca ctg aat ggc aac cag gag aac ccc tca tgc tgc ggc | 432 | |
| His Glu Phe Pro Leu Asn Gly Asn Gln Glu Asn Pro Ser Cys Cys Gly | | |
| 50 55 60 | | |
| atc gac ggc atc ctg gag gcc tac cac cgc agc ctg cgc act gtg cag | 480 | |
| Ile Asp Gly Ile Leu Glu Ala Tyr His Arg Ser Leu Arg Thr Val Gln | | |
| 65 70 75 | | |
| ctg tac ggc ccc acc aac ttt gcc ccc gtg gtc acc cac gtg gcc agg | 528 | |
| Leu Tyr Gly Pro Thr Asn Phe Ala Pro Val Val Thr His Val Ala Arg | | |
| 80 85 90 | | |
| aat gca gcg gcc gtg cag gat ggc tcc cag tac tcg gtg ctg ctc atc | 576 | |
| Asn Ala Ala Ala Val Gln Asp Gly Ser Gln Tyr Ser Val Leu Leu Ile | | |
| 95 100 105 | | |
| att act gat ggg gtc atc tcg gac atg gcg cag acc aag gag gcc att | 624 | |
| Ile Thr Asp Gly Val Ile Ser Asp Met Ala Gln Thr Lys Glu Ala Ile | | |
| 110 115 120 125 | | |
| gtc aac gct gcc aag ctc ccc atg tcc atc att atc gtc ggc gtg ggc | 672 | |
| Val Asn Ala Ala Lys Leu Pro Met Ser Ile Ile Ile Val Gly Val Gly | | |
| 130 135 140 | | |
| cag gca gag ttc gac gcc atg gtg gag ctg gat ggc gac gac gtg cgg | 720 | |
| Gln Ala Glu Phe Asp Ala Met Val Glu Leu Asp Gly Asp Val Arg | | |
| 145 150 155 | | |
| atc tcc tcc cgg ggg aag ctg gct gaa cgc gac atc gtc cag ttt gta | 768 | |
| Ile Ser Ser Arg Gly Lys Leu Ala Glu Arg Asp Ile Val Gln Phe Val | | |
| 160 165 170 | | |
| ccc ttc cgg gac tat gtg gac cgc aca ggc aac cac gtg ctg agc atg | 816 | |
| Pro Phe Arg Asp Tyr Val Asp Arg Thr Gly Asn His Val Leu Ser Met | | |
| 175 180 185 | | |
| gcc cgc ctg gcc cga gac gtg ctg gca gag atc cct gac caa ctg gtg | 864 | |
| Ala Arg Leu Ala Arg Asp Val Leu Ala Glu Ile Pro Asp Gln Leu Val | | |
| 190 195 200 205 | | |
| tcc tac atg aag gca cag ggc att cgc ccg cgt tcc cca ccc gca gca | 912 | |
| Ser Tyr Met Lys Ala Gln Gly Ile Arg Pro Arg Ser Pro Pro Ala Ala | | |
| 210 215 220 | | |
| cca acc cac tcg ccc tcg cag tcc cca gcc cgc acg ccc cct gcg tgc | 960 | |
| Pro Thr His Ser Pro Ser Gln Ser Pro Ala Arg Thr Pro Pro Ala Cys | | |
| 225 230 235 | | |
| ccc ctg cac acg cac atc tga ac ctggtctcag caggcaggtg gctggggcct | 1013 | |
| Pro Leu His Thr His Ile * | | |
| 240 | | |

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gtaccaagaa ggggagtgcc cgcggcaggg ttcatgaaa aaatccttag tgatattgac 180
atgtctcaag tgacataaat tagccaatga ctcgga atg atg gat tct ccg aag 234
Met Met Asp Ser Pro Lys
1 5

att gga aat ggt ttg cca gtg att gga cca ggg act gat ata ggg ata 282
Ile Gly Asn Gly Leu Pro Val Ile Gly Pro Gly Thr Asp Ile Gly Ile
10 15 20

tct tca ctc cac atg gtg ggg tat ttg gga aaa aat ttt gat tca gct 330
Ser Ser Leu His Met Val Gly Tyr Leu Gly Lys Asn Phe Asp Ser Ala
25 30 35

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| | |
|---|------|
| aaa gtt cca tca gat gag tat tgc cct gct tgt aga gag aag gga aag | 378 |
| Lys Val Pro Ser Asp Glu Tyr Cys Pro Ala Cys Arg Glu Lys Gly Lys | |
| 40 45 50 | |
| tta aaa gcc tta aag act tac cga att agt ttt caa gaa tct atc ttt | 426 |
| Leu Lys Ala Leu Lys Thr Tyr Arg Ile Ser Phe Gln Glu Ser Ile Phe | |
| 55 60 65 70 | |
| ttg tgt gag gat ctg cag tgc atc tat cct ttg ggc tct aaa tca ctt | 474 |
| Leu Cys Glu Asp Leu Gln Cys Ile Tyr Pro Leu Gly Ser Lys Ser Leu | |
| 75 80 85 | |
| aat aac cta att tct cct gat ttg gaa gaa tgt cac act cca cat aag | 522 |
| Asn Asn Leu Ile Ser Pro Asp Leu Glu Glu Cys His Thr Pro His Lys | |
| 90 95 100 | |
| cct cag aaa agg aag agc tta gaa agc agc tat aag gat tca ctc ctt | 570 |
| Pro Gln Lys Arg Lys Ser Leu Glu Ser Ser Tyr Lys Asp Ser Leu Leu | |
| 105 110 115 | |
| tta gca aat tcc aaa aag act aga aat tat att gct att gac ggt gga | 618 |
| Leu Ala Asn Ser Lys Lys Thr Arg Asn Tyr Ile Ala Ile Asp Gly Gly | |
| 120 125 130 | |
| aaa gtt ttg aac agc aaa cat aat gga gaa gta tat gac gaa acc tcg | 666 |
| Lys Val Leu Asn Ser Lys His Asn Gly Glu Val Tyr Asp Glu Thr Ser | |
| 135 140 145 150 | |
| tca aac tta cct gat agt agt ggt caa cag aat cca att agg aca gct | 714 |
| Ser Asn Leu Pro Asp Ser Ser Gly Gln Gln Asn Pro Ile Arg Thr Ala | |
| 155 160 165 | |
| gat tcc ttg gag cgg aat gag att ttg gaa gct gat act gtt gac atg | 762 |
| Asp Ser Leu Glu Arg Asn Glu Ile Leu Glu Ala Asp Thr Val Asp Met | |
| 170 175 180 | |
| gct act aca aaa gat cct gct aca gtt gat gtc tct gga act ggc aga | 810 |
| Ala Thr Thr Lys Asp Pro Ala Thr Val Asp Val Ser Gly Thr Gly Arg | |
| 185 190 195 | |
| cct tcc cct caa aat gaa gga tgt aca tct aaa ctg gaa atg cca ctg | 858 |
| Pro Ser Pro Gln Asn Glu Gly Cys Thr Ser Lys Leu Glu Met Pro Leu | |
| 200 205 210 | |
| gag agc aaa tgt aca tca ttt ccc cag gct tta tgt gtc cag tgg aaa | 906 |
| Glu Ser Lys Cys Thr Ser Phe Pro Gln Ala Leu Cys Val Gln Trp Lys | |
| 215 220 225 230 | |
| aat gct tat gct ctc tgt tgg tta gac tgt atc ctg tca gct ttg gtg | 954 |
| Asn Ala Tyr Ala Leu Cys Trp Leu Asp Cys Ile Leu Ser Ala Leu Val | |
| 235 240 245 | |
| cac tcg gaa gag tta aag aac acc gtg act gga ctg tgc tcg aag gag | 1002 |
| His Ser Glu Glu Leu Lys Asn Thr Val Thr Gly Leu Cys Ser Lys Glu | |
| 250 255 260 | |
| gaa tct ata ttc tgg cgg ttg ctt aca aaa tat aat caa gca aat aca | 1050 |
| Glu Ser Ile Phe Trp Arg Leu Leu Thr Lys Tyr Asn Gln Ala Asn Thr | |
| 265 270 275 | |
| ctt cta tat acc agt caa ttg agt ggt gtt aaa gat gga gat tgt aaa | 1098 |
| Leu Leu Tyr Thr Ser Gln Leu Ser Gly Val Lys Asp Gly Asp Cys Lys | |
| 280 285 290 | |

| | |
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| aaa ctt acc tca gaa ata ttt gca gag ata gag acc tgt ctg aat gaa | 1146 |
| Lys Leu Thr Ser Glu Ile Phe Ala Glu Ile Glu Thr Cys Leu Asn Glu | |
| 295 300 305 310 | |
| ggt aga gat gaa att ttt att agc ctt cag ccc cag ctt aga tgc aca | 1194 |
| Val Arg Asp Glu Ile Phe Ile Ser Leu Gln Pro Gln Leu Arg Cys Thr | |
| 315 320 325 | |
| tta ggt gat atg gaa agc cct gtg ttt gca ttt ccc ctg ctc tta aaa | 1242 |
| Leu Gly Asp Met Glu Ser Pro Val Phe Ala Phe Pro Leu Leu Leu Lys | |
| 330 335 340 | |
| cta gaa acc cac att gaa aag ctc ttc cta tat tct ttt tct tgg gac | 1290 |
| Leu Glu Thr His Ile Glu Lys Leu Phe Leu Tyr Ser Phe Ser Trp Asp | |
| 345 350 355 | |
| ttt gaa tgt tcg cag tgt gga cac caa tat caa aac agg cat atg aag | 1338 |
| Phe Glu Cys Ser Gln Cys Gly His Gln Tyr Gln Asn Arg His Met Lys | |
| 360 365 370 | |
| agt ctg gtc acc ttt aca aat gtc atc cct gag tgg cac cca ctt aat | 1386 |
| Ser Leu Val Thr Phe Thr Asn Val Ile Pro Glu Trp His Pro Leu Asn | |
| 375 380 385 390 | |
| gct gcc cat ttt ggc cca tgt aac aat tgc aac agt aaa tca caa ata | 1434 |
| Ala Ala His Phe Gly Pro Cys Asn Asn Cys Asn Ser Lys Ser Gln Ile | |
| 395 400 405 | |
| aga aaa atg gta tta gaa aaa gta tct ccc ata ttc atg ttg cac ttt | 1482 |
| Arg Lys Met Val Leu Glu Lys Val Ser Pro Ile Phe Met Leu His Phe | |
| 410 415 420 | |
| gta gaa ggc tta cca cag aat gac ttg cag cac tat gca ttt cat ttt | 1530 |
| Val Glu Gly Leu Pro Gln Asn Asp Leu Gln His Tyr Ala Phe His Phe | |
| 425 430 435 | |
| gaa ggc tgt ctt tat cag ata act tct gta att cag tat cga gca aat | 1578 |
| Glu Gly Cys Leu Tyr Gln Ile Thr Ser Val Ile Gln Tyr Arg Ala Asn | |
| 440 445 450 | |
| aat cat ttt ata aca tgg att tta gat gct gat gga agt tgg ctg gaa | 1626 |
| Asn His Phe Ile Thr Trp Ile Leu Asp Ala Asp Gly Ser Trp Leu Glu | |
| 455 460 465 470 | |
| tgt gat gac tta aaa ggc cca tgt tct gaa agg cac aag aaa ttt gaa | 1674 |
| Cys Asp Asp Leu Lys Gly Pro Cys Ser Glu Arg His Lys Lys Phe Glu | |
| 475 480 485 | |
| gtt cct gct tca gag ata cat att gtt att tgg gaa aga aaa ata tcc | 1722 |
| Val Pro Ala Ser Glu Ile His Ile Val Ile Trp Glu Arg Lys Ile Ser | |
| 490 495 500 | |
| caa gtg aca gat aaa gaa gct gcc tgc ctt cca ctt aaa aag act aat | 1770 |
| Gln Val Thr Asp Lys Glu Ala Ala Cys Leu Pro Leu Lys Lys Thr Asn | |
| 505 510 515 | |
| gac caa cac gct ctc agt aat gag aaa cca gta tct tta aca tcg tgt | 1818 |
| Asp Gln His Ala Leu Ser Asn Glu Lys Pro Val Ser Leu Thr Ser Cys | |
| 520 525 530 | |
| tct gtg ggt gat gct gcc tca gct gaa aca gcc tca gta act cac cct | 1866 |
| Ser Val Gly Asp Ala Ala Ser Ala Glu Thr Ala Ser Val Thr His Pro | |
| 535 540 545 550 | |

| | |
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| aaa gat ata tca gtt gcc cct cgt act ctt tca cag gac aca gct gta Lys Asp Ile Ser Val Ala Pro Arg Thr Leu Ser Gln Asp Thr Ala Val 555 560 565 | 1914 |
| act cat gga gat cat tta ctt tca ggt cca aaa ggt ttg gtt gac aat Thr His Gly Asp His Leu Leu Ser Gly Pro Lys Gly Leu Val Asp Asn 570 575 580 | 1962 |
| att tta cct ctg aca ctt gaa gaa act atc cag aaa aca gcc tca gtt Ile Leu Pro Leu Thr Leu Glu Glu Thr Ile Gln Lys Thr Ala Ser Val 585 590 595 | 2010 |
| tca cag tta aat tct gaa gct ttc ctg tta gaa aat aaa cct gta gca Ser Gln Leu Asn Ser Glu Ala Phe Leu Leu Glu Asn Lys Pro Val Ala 600 605 610 | 2058 |
| gaa aat aca gga att ctc aaa acc aat act ttg cta tca caa gaa tca Glu Asn Thr Gly Ile Leu Lys Thr Asn Thr Leu Leu Ser Gln Glu Ser 615 620 625 630 | 2106 |
| cta atg gct tct tca gta tca gct cca tgt aat gaa aag ctt att caa Leu Met Ala Ser Ser Val Ser Ala Pro Cys Asn Glu Lys Leu Ile Gln 635 640 645 | 2154 |
| gac caa ttt gtg gac ata agt ttt cca tcc caa gtt gta aat aca aac Asp Gln Phe Val Asp Ile Ser Phe Pro Ser Gln Val Val Asn Thr Asn 650 655 660 | 2202 |
| atg cag tca gta cag ctg aat aca gaa gat act gta aat act aaa tct Met Gln Ser Val Gln Leu Asn Thr Glu Asp Thr Val Asn Thr Lys Ser 665 670 675 | 2250 |
| gtg aat aat act gat gct act ggt ctt ata cag gga gtg aag tca gta Val Asn Asn Thr Asp Ala Thr Gly Leu Ile Gln Gly Val Lys Ser Val 680 685 690 | 2298 |
| gaa att gag aag gac gct cag tta aaa caa ttc ctt aca cca aaa act Glu Ile Glu Lys Asp Ala Gln Leu Lys Gln Phe Leu Thr Pro Lys Thr 695 700 705 710 | 2346 |
| gaa caa tta aaa cca gaa cgt gtc aca tct cag gta tct aat ttg aag Glu Gln Leu Lys Pro Glu Arg Val Thr Ser Gln Val Ser Asn Leu Lys 715 720 725 | 2394 |
| aaa aaa gaa act aca gca gat tct caa acc aca aca tct aag tca tta Lys Lys Glu Thr Thr Ala Asp Ser Gln Thr Thr Thr Ser Lys Ser Leu 730 735 740 | 2442 |
| cag aat cag tct ctg aaa gaa aat cag aag aag cca ttt gtg gga agt Gln Asn Gln Ser Leu Lys Glu Asn Gln Lys Lys Pro Phe Val Gly Ser 745 750 755 | 2490 |
| tgg gtt aaa ggc tta ata agc agg ggt gct tct ttt atg cca ctc tgt Trp Val Lys Gly Leu Ile Ser Arg Gly Ala Ser Phe Met Pro Leu Cys 760 765 770 | 2538 |
| gtt tca gct cat aat aga aac act ata act gat tta caa cct tca gtt Val Ser Ala His Asn Arg Asn Thr Ile Thr Asp Leu Gln Pro Ser Val 775 780 785 790 | 2586 |
| aaa ggg gta aat aat ttt ggt ggc ttt aaa act aaa ggt ata aac cag Lys Gly Val Asn Asn Phe Gly Gly Phe Lys Thr Lys Gly Ile Asn Gln 795 800 805 | 2634 |

| | |
|---|------|
| aag gcc agc cac gta . tcc aag aaa gct cgt aag agt gca agt aag cct Lys Ala Ser His Val Ser Lys Lys Ala Arg Lys Ser Ala Ser Lys Pro 810 815 820 | 2682 |
| cct ccc atc agt aag cca cca gca ggc cct cca tcg tct aat ggc aca Pro Pro Ile Ser Lys Pro Pro Ala Gly Pro Pro Ser Ser Asn Gly Thr 825 830 835 | 2730 |
| gct gcc cac cca cat gct cat gct gct tca gaa gtt ttg gaa aag tct Ala Ala His Pro His Ala His Ala Ala Ser Glu Val Leu Glu Lys Ser 840 845 850 | 2778 |
| gga agc acc tca tgt gga gct caa ctc aac cac agt tct tat ggg aat Gly Ser Thr Ser Cys Gly Ala Gln Leu Asn His Ser Ser Tyr Gly Asn 855 860 865 870 | 2826 |
| ggt att tct tca gca aac cat gaa gac ttg gtg gaa ggt cag att cat Gly Ile Ser Ser Ala Asn His Glu Asp Leu Val Glu Gly Gln Ile His 875 880 885 | 2874 |
| aaa ctt cgt cta aaa ctt cgt aaa aag cta aag gca gaa aag aag aaa Lys Leu Arg Leu Lys Leu Arg Lys Lys Leu Lys Ala Glu Lys Lys Lys 890 895 900 | 2922 |
| tta gct gct ctt atg tct tcc ccg caa agc aga aca gtt cga agt gaa Leu Ala Ala Leu Met Ser Ser Pro Gln Ser Arg Thr Val Arg Ser Glu 905 910 915 | 2970 |
| aat cta gaa cag gtg ccc cag gat ggg tct cca aat gat tgt gaa tca Asn Leu Glu Gln Val Pro Gln Asp Gly Ser Pro Asn Asp Cys Glu Ser 920 925 930 | 3018 |
| ata gag gac ttg tta aat gag cta cca tat cca att gat att gcc aat Ile Glu Asp Leu Leu Asn Glu Leu Pro Tyr Pro Ile Asp Ile Ala Asn 935 940 945 950 | 3066 |
| gag tct gca tgc acc act gtt cct ggt gtt tcc ctg tac agt agt caa Glu Ser Ala Cys Thr Thr Val Pro Gly Val Ser Leu Tyr Ser Ser Gln 955 960 965 | 3114 |
| act cat gaa gaa att tta gcg gaa tta ttg tct cct aca cct gtt tca Thr His Glu Glu Ile Leu Ala Glu Leu Leu Ser Pro Thr Pro Val Ser 970 975 980 | 3162 |
| aca gag ctg tca gaa aat ggg gaa ggt gac ttt agg tat ttg gga atg Thr Glu Leu Ser Glu Asn Gly Glu Gly Asp Phe Arg Tyr Leu Gly Met 985 990 995 | 3210 |
| gga gat agt cat atc cca cca cca gta cca agt gaa ttc aat gat gtt Gly Asp Ser His Ile Pro Pro Pro Val Pro Ser Glu Phe Asn Asp Val 1000 1005 1010 | 3258 |
| tcc cag aac aca cat ctg aga cag gac cat aat tat tgt agc ccc acc Ser Gln Asn Thr His Leu Arg Gln Asp His Asn Tyr Cys Ser Pro Thr 1015 1020 1025 1030 | 3306 |
| aag aaa aat cca tgt gaa gtt cag cca gac tct ctg aca aat aat gcc Lys Lys Asn Pro Cys Glu Val Gln Pro Asp Ser Leu Thr Asn Asn Ala 1035 1040 1045 | 3354 |
| tgc gtt aga aca tta aac ttg gag agt ccg atg aag act gat att ttc Cys Val Arg Thr Leu Asn Leu Glu Ser Pro Met Lys Thr Asp Ile Phe 1050 1055 1060 | 3402 |

gat gag ttt ttt tcc tcc tca gca tta aat gct tta gca aat gac aca 3450
 Asp Glu Phe Phe Ser Ser Ser Ala Leu Asn Ala Leu Ala Asn Asp Thr
 1065 1070 1075

tta gac cta cct cat ttc gat gaa tat ctg ttt gag aat tat tga att 3498
 Leu Asp Leu Pro His Phe Asp Glu Tyr Leu Phe Glu Asn Tyr *

1080 1085 1090

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caggtagtgt ttatacactg gacttggtgta attacttggtg taataaccat gaacaaaatg 3618

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 Met Asp Ala Lys Ser Leu Thr Ala Trp Ser Arg Thr Leu
 1 5 10

gtg acc ttc aag gat gta ttt gtg gac ttc acc agg gag gag tgg aag 157
 Val Thr Phe Lys Asp Val Phe Val Asp Phe Thr Arg Glu Glu Trp Lys
 15 20 25

ctg ctg gac act gct cag cag atc gtg tac aga aat gtg atg ctg gag 205
 Leu Leu Asp Thr Ala Gln Gln Ile Val Tyr Arg Asn Val Met Leu Glu
 30 35 40 45

aac tat aag aac ctg gtt tcc ttg ggt tat cag ctt act aag cca gat 253
 Asn Tyr Lys Asn Leu Val Ser Leu Gly Tyr Gln Leu Thr Lys Pro Asp
 50 55 60

gtg atc ctc cgg ttg gag aag gga gaa gag ccc tgg ctg gtg gag aga 301
 Val Ile Leu Arg Leu Glu Lys Gly Glu Glu Pro Trp Leu Val Glu Arg
 65 70 75

gaa att cac caa gag acc cat cct gat tca gag act gca ttt gaa atc 349
 Glu Ile His Gln Glu Thr His Pro Asp Ser Glu Thr Ala Phe Glu Ile
 80 85 90

aaa tca tca gtt tcc agc agg agc att ttt aaa gat aag caa tcc tgt 397
 Lys Ser Ser Val Ser Ser Arg Ser Ile Phe Lys Asp Lys Gln Ser Cys
 95 100 105

gac att aaa atg gaa gga atg gca agg aat gat ctc tgg tat ttg tca 445
 Asp Ile Lys Met Glu Gly Met Ala Arg Asn Asp Leu Trp Tyr Leu Ser
 110 115 120 125

| | |
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| tta gaa gaa gtc tgg aaa tgt aga gac cag tta gac aag tat cag gaa | 493 |
| Leu Glu Glu Val Trp Lys Cys Arg Asp Gln Leu Asp Lys Tyr Gln Glu | |
| 130 135 140 | |
| aac cca gag aga cat ttg agg caa gtg gca ttc acc caa aag aaa gta | 541 |
| Asn Pro Glu Arg His Leu Arg Gln Val Ala Phe Thr Gln Lys Lys Val | |
| 145 150 155 | |
| ctt act cag gag aga gtc tct gaa agt ggt aaa tat ggg gga aac tgt | 589 |
| Leu Thr Gln Glu Arg Val Ser Glu Ser Gly Lys Tyr Gly Gly Asn Cys | |
| 160 165 170 | |
| ctt ctt cct gct cag cta gta ctg aga gag tat ttc cat aaa cgt gac | 637 |
| Leu Leu Pro Ala Gln Leu Val Leu Arg Glu Tyr Phe His Lys Arg Asp | |
| 175 180 185 | |
| tca cat act aaa agt tta aaa cat gat tta gtt ctt aat ggt cat cag | 685 |
| Ser His Thr Lys Ser Leu Lys His Asp Leu Val Leu Asn Gly His Gln | |
| 190 195 200 205 | |
| gac agt tgt gca agt aac agt aat gaa tgt ggt caa act ttc tgt caa | 733 |
| Asp Ser Cys Ala Ser Asn Ser Asn Glu Cys Gly Gln Thr Phe Cys Gln | |
| 210 215 220 | |
| aac att cac ctt att cag ttt gca aga act cac aca ggt gat aaa tcc | 781 |
| Asn Ile His Leu Ile Gln Phe Ala Arg Thr His Thr Gly Asp Lys Ser | |
| 225 230 235 | |
| tac aaa tgc cct gat aat gac aac tct ctt act cat ggt tca tct ctt | 829 |
| Tyr Lys Cys Pro Asp Asn Asp Asn Ser Leu Thr His Gly Ser Ser Leu | |
| 240 245 250 | |
| ggt ata tca aag ggc ata cat aga gag aaa ccc tat gaa tgt aag gaa | 877 |
| Gly Ile Ser Lys Gly Ile His Arg Glu Lys Pro Tyr Glu Cys Lys Glu | |
| 255 260 265 | |
| tgt gga aaa ttc ttc agc tgg cgc tct aat ctt act agg cat cag ctt | 925 |
| Cys Gly Lys Phe Phe Ser Trp Arg Ser Asn Leu Thr Arg His Gln Leu | |
| 270 275 280 285 | |
| att cat act gga gaa aaa ccc tat gag tgt aaa gaa tgt gga aag tct | 973 |
| Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ser | |
| 290 295 300 | |
| ttc agc cgg agt tct cac ctc att gga cat caa aag acc cat act ggt | 1021 |
| Phe Ser Arg Ser Ser His Leu Ile Gly His Gln Lys Thr His Thr Gly | |
| 305 310 315 | |
| gag gaa ccc tat gaa tgt aaa gaa tgt gga aaa tcc ttc agc tgg ttc | 1069 |
| Glu Glu Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ser Phe Ser Trp Phe | |
| 320 325 330 | |
| tct cac ctt gtt act cat cag aga act cat aca gga gac aaa ctg tac | 1117 |
| Ser His Leu Val Thr His Gln Arg Thr His Thr Gly Asp Lys Leu Tyr | |
| 335 340 345 | |
| aca tgt aat cag tgt ggg aaa tct ttt gtt cat agc tct agg ctt att | 1165 |
| Thr Cys Asn Gln Cys Gly Lys Ser Phe Val His Ser Ser Arg Leu Ile | |
| 350 355 360 365 | |
| aga cac cag agg aca cat act gga gag aaa ccc tat gaa tgt cct gaa | 1213 |
| Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys Pro Glu | |
| 370 375 380 | |

tgt ggg aaa tct ttc aga cag agc aca cat ctc att ctg cat cag aga 1261
 Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu Ile Leu His Gln Arg
 385 390 395

 acc cat gtg aga gtg agg ccc tat gaa tgc aat gaa tgt gga aag tct 1309
 Thr His Val Arg Val Arg Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ser
 400 405 410

 tac agc cag aga tct cac ctt gtt gtg cat cat aga att cac act gga 1357
 Tyr Ser Gln Arg Ser His Leu Val Val His His Arg Ile His Thr Gly
 415 420 425

 cta aaa cct ttt gag tgt aag gat tgt gga aaa tgt ttt agt cga agc 1405
 Leu Lys Pro Phe Glu Cys Lys Asp Cys Gly Lys Cys Phe Ser Arg Ser
 430 435 440 445

 tct cac ctt tat tca cat caa aga acc cac act gga gag aaa cca tat 1453
 Ser His Leu Tyr Ser His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
 450 455 460

 gag tgt cat gat tgt gga aaa tct ttc agc cag agt tct gcc ctt att 1501
 Glu Cys His Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ala Leu Ile
 465 470 475

 gtg cat cag agg ata cac act gga gag aaa cca tat gaa tgc tgt cag 1549
 Val His Gln Arg Ile His Thr Gly Glu Lys Pro Tyr Glu Cys Cys Gln
 480 485 490

 tgt ggg aaa gcc ttc atc cgg aag aat gac ctc att aag cac cag aga 1597
 Cys Gly Lys Ala Phe Ile Arg Lys Asn Asp Leu Ile Lys His Gln Arg
 495 500 505

 att cat gtt gga gaa gag acc tat aaa tgt aat caa tgt ggc att atc 1645
 Ile His Val Gly Glu Glu Thr Tyr Lys Cys Asn Gln Cys Gly Ile Ile
 510 515 520 525

 ttc agc cag aac tct cca ttt ata gtt cat caa ata gct cac act gga 1693
 Phe Ser Gln Asn Ser Pro Phe Ile Val His Gln Ile Ala His Thr Gly
 530 535 540

 gag cag ttc tta aca tgc aat caa tgt ggg aca gcg ctt gtt aat acc 1741
 Glu Gln Phe Leu Thr Cys Asn Gln Cys Gly Thr Ala Leu Val Asn Thr
 545 550 555

 tct aac ctt att gga tac cag aca aat cat att aga gaa aat gct tac 1789
 Ser Asn Leu Ile Gly Tyr Gln Thr Asn His Ile Arg Glu Asn Ala Tyr
 560 565 570

 taataaatat gggaattttt cacaaagaaa aaaaaaaaaa 1828

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| caaggagggc | atg gat gct aag tca cta act gcc tgg tcc cgg aca ctg | 109 |
| | Met Asp Ala Lys Ser Leu Thr Ala Trp Ser Arg Thr Leu | |
| | 1 5 10 | |
| gtg acc ttc aag gat gta ttt gtg gac ttc acc agg gag gag tgg aag | 157 | |
| Val Thr Phe Lys Asp Val Phe Val Asp Phe Thr Arg Glu Glu Trp Lys | | |
| | 15 20 25 | |
| ctg ctg gac act gct cag cag atc gtg tac aga aat gtg atg ctg gag | 205 | |
| Leu Leu Asp Thr Ala Gln Gln Ile Val Tyr Arg Asn Val Met Leu Glu | | |
| | 30 35 40 45 | |
| aac tat aag aac ctg gtt tcc ttg ggt tat cag ctt act aag cca gat | 253 | |
| Asn Tyr Lys Asn Leu Val Ser Leu Gly Tyr Gln Leu Thr Lys Pro Asp | | |
| | 50 55 60 | |
| gtg atc ctc cgg ttg gag aag gga gaa gag ccc tgg ctg gtg gag aga | 301 | |
| Val Ile Leu Arg Leu Glu Lys Gly Glu Glu Pro Trp Leu Val Glu Arg | | |
| | 65 70 75 | |
| gaa att cac caa gag acc cat cct gat tca gag act gca ttt gaa atc | 349 | |
| Glu Ile His Gln Glu Thr His Pro Asp Ser Glu Thr Ala Phe Glu Ile | | |
| | 80 85 90 | |
| aaa tca tca gtt tcc agc agg agc att ttt aaa gat aag caa tcc tgt | 397 | |
| Lys Ser Ser Val Ser Ser Arg Ser Ile Phe Lys Asp Lys Gln Ser Cys | | |
| | 95 100 105 | |
| gac att aaa atg gaa gga atg gca agg aat gat ctc tgg tat ttg tca | 445 | |
| Asp Ile Lys Met Glu Gly Met Ala Arg Asn Asp Leu Trp Tyr Leu Ser | | |
| | 110 115 120 125 | |
| tta gaa gaa gtc tgg aaa tgt aga gac cag tta gac aag tat cag gaa | 493 | |
| Leu Glu Glu Val Trp Lys Cys Arg Asp Gln Leu Asp Lys Tyr Gln Glu | | |
| | 130 135 140 | |
| aac cca gag aga cat ttg agg cat cag ctt att cat act gga gaa aaa | 541 | |
| Asn Pro Glu Arg His Leu Arg His Gln Leu Ile His Thr Gly Glu Lys | | |
| | 145 150 155 | |
| ccc tat gag tgt aaa gaa tgt gga aag tct ttc agc cgg agt tct cac | 589 | |
| Pro Tyr Glu Cys Lys Glu Cys Gly Lys Ser Phe Ser Arg Ser Ser His | | |
| | 160 165 170 | |
| ctc att gga cat caa aag acc cat act ggt gag gaa ccc tat gaa tgt | 637 | |
| Leu Ile Gly His Gln Lys Thr His Thr Gly Glu Glu Pro Tyr Glu Cys | | |
| | 175 180 185 | |
| aaa gaa tgt gga aaa tcc ttc agc tgg ttc tct cac ctt gtt act cat | 685 | |
| Lys Glu Cys Gly Lys Ser Phe Ser Trp Phe Ser His Leu Val Thr His | | |
| | 190 195 200 205 | |
| cag aga act cat aca gga gac aaa ctg tac aca tgt aat cag tgt ggg | 733 | |
| Gln Arg Thr His Thr Gly Asp Lys Leu Tyr Thr Cys Asn Gln Cys Gly | | |
| | 210 215 220 | |
| aaa tct ttt gtt cat agc tct agg ctt att aga cac cag agg aca cat | 781 | |
| Lys Ser Phe Val His Ser Ser Arg Leu Ile Arg His Gln Arg Thr His | | |
| | 225 230 235 | |
| act gga gag aaa ccc tat gaa tgt cct gaa tgt ggg aaa tct ttc aga | 829 | |
| Thr Gly Glu Lys Pro Tyr Glu Cys Pro Glu Cys Gly Lys Ser Phe Arg | | |
| | 240 245 250 | |

| | |
|---|------|
| cag agc aca cat ctc att ctg cat cag aga acc cat gtg aga gtg agg | 877 |
| Gln Ser Thr His Leu Ile Leu His Gln Arg Thr His Val Arg Val Arg | |
| 255 260 265 | |
| ccc tat gaa tgc aat gaa tgt gga aag tct tac agc cag aga tct cac | 925 |
| Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ser Tyr Ser Gln Arg Ser His | |
| 270 275 280 285 | |
| ctt gtt gtg cat cat aga att cac act gga cta aaa cct ttt gag tgt | 973 |
| Leu Val Val His His Arg Ile His Thr Gly Leu Lys Pro Phe Glu Cys | |
| 290 295 300 | |
| aag gat tgt gga aaa tgt ttt agt cga agc tct cac ctt tat tca cat | 1021 |
| Lys Asp Cys Gly Lys Cys Phe Ser Arg Ser Ser His Leu Tyr Ser His | |
| 305 310 315 | |
| caa aga acc cac act gga gag aaa cca tat gag tgt cat gat tgt gga | 1069 |
| Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Glu Cys His Asp Cys Gly | |
| 320 325 330 | |
| aaa tct ttc agc cag agt tct gcc ctt att gtg cat cag agg ata cac | 1117 |
| Lys Ser Phe Ser Gln Ser Ser Ala Leu Ile Val His Gln Arg Ile His | |
| 335 340 345 | |
| act gga gag aaa cca tat gaa tgc tgt cag tgt ggg aaa gcc ttc atc | 1165 |
| Thr Gly Glu Lys Pro Tyr Glu Cys Cys Gln Cys Gly Lys Ala Phe Ile | |
| 350 355 360 365 | |
| cgg aag aat gac ctc att aag cac cag aga att cat gtt gga gaa gag | 1213 |
| Arg Lys Asn Asp Leu Ile Lys His Gln Arg Ile His Val Gly Glu Glu | |
| 370 375 380 | |
| acc tat aaa tgt aat caa tgt ggc att atc ttc agc cag aac tct cca | 1261 |
| Thr Tyr Lys Cys Asn Gln Cys Gly Ile Ile Phe Ser Gln Asn Ser Pro | |
| 385 390 395 | |
| ttt ata gtt cat caa ata gct cac act gga gag cag ttc tta aca tgc | 1309 |
| Phe Ile Val His Gln Ile Ala His Thr Gly Glu Gln Phe Leu Thr Cys | |
| 400 405 410 | |
| aat caa tgt ggg aca gcg ctt gtt aat acc tct aac ctt att gga tac | 1357 |
| Asn Gln Cys Gly Thr Ala Leu Val Asn Thr Ser Asn Leu Ile Gly Tyr | |
| 415 420 425 | |
| cag aca aat cat att aga gaa aat gct tac taa taaatatg ggaatttttc | 1408 |
| Gln Thr Asn His Ile Arg Glu Asn Ala Tyr * | |
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2241

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| tta agt aca aac aaa aac caa ctg aag cag ctg aca gag aca tat gag Leu Ser Thr Asn Lys Asn Gln Leu Lys Gln Leu Thr Glu Thr Tyr Glu 215 220 225 | 969 |
| gaa gat cga aaa aac tac tct gaa gtt caa att aga tgt caa cgt ttg Glu Asp Arg Lys Asn Tyr Ser Glu Val Gln Ile Arg Cys Gln Arg Leu 230 235 240 | 1017 |
| gcc tta gaa tta gca gac aca aaa cag tta att cag caa ggt gac tac Ala Leu Glu Leu Ala Asp Thr Lys Gln Leu Ile Gln Gln Gly Asp Tyr 245 250 255 | 1065 |
| cgt caa gag aac tat gat aaa gtc aag agt gaa cgt gat gca ctt gaa Arg Gln Glu Asn Tyr Asp Lys Val Lys Ser Glu Arg Asp Ala Leu Glu 260 265 270 275 | 1113 |
| cag gaa gta att gag ctt agg aga aaa cat gaa ata ctt gaa gcc tct Gln Glu Val Ile Glu Leu Arg Arg Lys His Glu Ile Leu Glu Ala Ser 280 285 290 | 1161 |
| cac atg att caa aca aaa gaa cga agt gaa tta tca aaa gag gta gtc His Met Ile Gln Thr Lys Glu Arg Ser Glu Leu Ser Lys Glu Val Val 295 300 305 | 1209 |
| acc tta gag caa act gtt act tta ctg caa aag gat aaa gaa tat ctt Thr Leu Glu Gln Thr Val Thr Leu Leu Gln Lys Asp Lys Glu Tyr Leu 310 315 320 | 1257 |
| aat cgc caa aac atg gag ctt agt gtt cgc tgt gct cat gaa gag gat Asn Arg Gln Asn Met Glu Leu Ser Val Arg Cys Ala His Glu Glu Asp 325 330 335 | 1305 |
| cgc ctt gaa aga ctt caa gct caa ctg gaa gaa agc aaa aag gct aga Arg Leu Glu Arg Leu Gln Ala Gln Leu Glu Glu Ser Lys Lys Ala Arg 340 345 350 355 | 1353 |
| gaa gag atg tat gaa aaa tat gta gca tcc aga gac cat tat aaa aca Glu Glu Met Tyr Glu Lys Tyr Val Ala Ser Arg Asp His Tyr Lys Thr 360 365 370 | 1401 |
| gaa tat gaa aat aaa cta cat gat gaa cta gaa caa atc aga ttg aaa Glu Tyr Glu Asn Lys Leu His Asp Glu Leu Glu Gln Ile Arg Leu Lys 375 380 385 | 1449 |
| acc aac caa gaa att gat caa ctt cga aat gcc tct agg gaa atg tat Thr Asn Gln Glu Ile Asp Gln Leu Arg Asn Ala Ser Arg Glu Met Tyr 390 395 400 | 1497 |
| gaa cga gaa aac aga aat ctc cga gaa gca agg gat aat gct gtg gct Glu Arg Glu Asn Arg Asn Leu Arg Glu Ala Arg Asp Asn Ala Val Ala 405 410 415 | 1545 |
| gaa aag gaa cga gca gtg atg gct gaa aag gat gct tta gaa aaa cac Glu Lys Glu Arg Ala Val Met Ala Glu Lys Asp Ala Leu Glu Lys His 420 425 430 435 | 1593 |
| gat cag ctc tta gac agg tac aga gaa cta caa ctt agt aca gaa agc Asp Gln Leu Leu Asp Arg Tyr Arg Glu Leu Gln Leu Ser Thr Glu Ser 440 445 450 | 1641 |

| | |
|---|------|
| aaa gta aca gaa ttt ctc cat caa agt aaa tta aaa tct ttt gaa agt | 1689 |
| Lys Val Thr Glu Phe Leu His Gln Ser Lys Leu Lys Ser Phe Glu Ser | |
| 455 460 465 | |
| gag cgt gtt caa ctt ctg caa gag gaa aca gca aga aat ctc aca cag | 1737 |
| Glu Arg Val Gln Leu Leu Gln Glu Thr Ala Arg Asn Leu Thr Gln | |
| 470 475 480 | |
| tgt caa ttg gaa tgt gaa aaa tat cag aaa aaa ttg gag gtt tta acc | 1785 |
| Cys Gln Leu Glu Cys Glu Lys Tyr Gln Lys Lys Leu Glu Val Leu Thr | |
| 485 490 495 | |
| aaa gaa ttt tat agt ctc caa gcc tct tct gaa aaa cgc att act gaa | 1833 |
| Lys Glu Phe Tyr Ser Leu Gln Ala Ser Ser Glu Lys Arg Ile Thr Glu | |
| 500 505 510 515 | |
| ctt caa gca cag aac tca gag cat caa gca agg cta gac att tat gag | 1881 |
| Leu Gln Ala Gln Asn Ser Glu His Gln Ala Arg Leu Asp Ile Tyr Glu | |
| 520 525 530 | |
| aaa ctg gaa aaa gag ctt gat gaa ata ata atg caa act gca gaa att | 1929 |
| Lys Leu Glu Lys Glu Leu Asp Glu Ile Ile Met Gln Thr Ala Glu Ile | |
| 535 540 545 | |
| gaa aat gaa gat gag gct gaa agg gtt ctt ttt tcc tac ggc tat ggt | 1977 |
| Glu Asn Glu Asp Glu Ala Glu Arg Val Leu Phe Ser Tyr Gly Tyr Gly | |
| 550 555 560 | |
| gct aat gtt ccc aca aca gcc aaa aga cga cta aag caa agt gtt cac | 2025 |
| Ala Asn Val Pro Thr Thr Ala Lys Arg Arg Leu Lys Gln Ser Val His | |
| 565 570 575 | |
| ttg gca aga aga gtg ctt caa tta gaa aaa caa aac tcg ctg att tta | 2073 |
| Leu Ala Arg Arg Val Leu Gln Leu Glu Lys Gln Asn Ser Leu Ile Leu | |
| 580 585 590 595 | |
| aaa gat ctg gaa cat cga aag gac caa gta aca cag ctt tca cca gga | 2121 |
| Lys Asp Leu Glu His Arg Lys Asp Gln Val Thr Gln Leu Ser Pro Gly | |
| 600 605 610 | |
| gct tga cagaggccaa ttcgctatta aaccagactc aacagcctta caggtatctc | 2177 |
| Ala * | |
| attgaatcag tgcgtcagag agattctaag attgattcac tgacggaatc tattgcacaa | 2237 |
| cttggagaaa ggatgtcagc aacttaaata aagaaaagtc agctttacta cagacggang | 2297 |
| gaatcaaaat ggcattagga tttaggacca acttctaaat catcgtgagg aattggcagc | 2357 |
| aatgaaacag attctcgtta agatgcatag taaacattct gagaacagct tacttctcac | 2417 |
| taaaacagaa ccaaaacatg tgacagaaaa tcagaaatca aagactttga atgtgcctaa | 2477 |
| agagcatgaa gacaatatat ttacacctaa accaactc tttactaaaa aagaagcacc | 2537 |
| tgagtggctc aagaaacaaa agatgaagac ctag | 2571 |

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atgctgccga attcagagtt gttgctgatg cc  atg aaa gtc att ggc ttc aaa      113
                                   Met Lys Val Ile Gly Phe Lys
                                   1                               5

cct gag gag atc caa aca gtg tat aag att ttg gct gct att ctg cac      161
Pro Glu Glu Ile Gln Thr Val Tyr Lys Ile Leu Ala Ala Ile Leu His
      10                               15                               20

ttg gga aat tta aaa ttt gta gta gat ggt gac acg cct ctt att gag      209
Leu Gly Asn Leu Lys Phe Val Val Asp Gly Asp Thr Pro Leu Ile Glu
      25                               30                               35

aat ggc aaa gta gta tct atc ata gca gaa ttg ctc tct act aag aca      257
Asn Gly Lys Val Val Ser Ile Ile Ala Glu Leu Leu Ser Thr Lys Thr
      40                               45                               50                               55

gat atg gtt gag aaa gcc ctt ctt tac cgg act ggg gcc aca ggc cgt      305
Asp Met Val Glu Lys Ala Leu Leu Tyr Arg Thr Gly Ala Thr Gly Arg
                                   60                               65                               70

gac atc att gac aag cag cac aca gaa caa gag gcc agc tac ggc aga      353
Asp Ile Ile Asp Lys Gln His Thr Glu Gln Glu Ala Ser Tyr Gly Arg
                                   75                               80                               85

gac gcc ttt gcc aag gca ata tat gag cgc ctt ttt tgt tgg atc gtt      401
Asp Ala Phe Ala Lys Ala Ile Tyr Glu Arg Leu Phe Cys Trp Ile Val
      90                               95                               100

act cgc atc aat gat att att gag gtc aag aac tat gac acc aca atc      449
Thr Arg Ile Asn Asp Ile Ile Glu Val Lys Asn Tyr Asp Thr Thr Ile
      105                               110                               115

cat ggg aaa aac act gtt att ggt gtc ttg gat atc tat ggc ttt gaa      497
His Gly Lys Asn Thr Val Ile Gly Val Leu Asp Ile Tyr Gly Phe Glu
      120                               125                               130                               135

atc ttt gac aac aac agt ttt gaa caa ttc tgt atc aat tac tgc aat      545
Ile Phe Asp Asn Asn Ser Phe Glu Gln Phe Cys Ile Asn Tyr Cys Asn
                                   140                               145                               150

gag aaa ctg cag cag cta ttt att cag ctg gtt ctg aag caa gaa caa      593
Glu Lys Leu Gln Gln Leu Phe Ile Gln Leu Val Leu Lys Gln Glu Gln
                                   155                               160                               165

gag gaa tac cag cgg gaa ggg atc ccc tgg aaa cat att gac tac ttc      641
Glu Glu Tyr Gln Arg Glu Gly Ile Pro Trp Lys His Ile Asp Tyr Phe
      170                               175                               180

aac aat cag atc att gtt gac ctc gtg gag caa cag cac aaa ggg atc      689
Asn Asn Gln Ile Ile Val Asp Leu Val Glu Gln Gln His Lys Gly Ile
      185                               190                               195

att gca atc ctt gat gat gct tgc atg aat gtc ggc aaa gtc acc gat      737
Ile Ala Ile Leu Asp Asp Ala Cys Met Asn Val Gly Lys Val Thr Asp

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| 200 | 205 | 210 | 215 | |
|---|-----|-----|-----|------|
| gaa atg ttt ctt gaa gca ctt aac agt aaa ttg ggc aaa cac gcc cat | | | | 785 |
| Glu Met Phe Leu Glu Ala Leu Asn Ser Lys Leu Gly Lys His Ala His | | | | |
| 220 | 225 | 230 | | |
| ttt tcc agc cga aag ctc tgt gcc tca gac aaa att ctg gag ttt gat | | | | 833 |
| Phe Ser Ser Arg Lys Leu Cys Ala Ser Asp Lys Ile Leu Glu Phe Asp | | | | |
| 235 | 240 | 245 | | |
| cga gat ttt cga att cga cat tat gca ggc gat gta gtc tat tct gtc | | | | 881 |
| Arg Asp Phe Arg Ile Arg His Tyr Ala Gly Asp Val Val Tyr Ser Val | | | | |
| 250 | 255 | 260 | | |
| att ggt ttt att gac aaa aat aaa gat act tta ttt caa gat ttc aag | | | | 929 |
| Ile Gly Phe Ile Asp Lys Asn Lys Asp Thr Leu Phe Gln Asp Phe Lys | | | | |
| 265 | 270 | 275 | | |
| cgc ctt atg tat aac agt tca aat cct gtg ctc aag aat atg tgg cct | | | | 977 |
| Arg Leu Met Tyr Asn Ser Ser Asn Pro Val Leu Lys Asn Met Trp Pro | | | | |
| 280 | 285 | 290 | 295 | |
| gaa ggc aaa ctg agc att aca gag gtg acc aag cga cct ctg act gct | | | | 1025 |
| Glu Gly Lys Leu Ser Ile Thr Glu Val Thr Lys Arg Pro Leu Thr Ala | | | | |
| 300 | 305 | 310 | | |
| gct acc ttg ttt aag aat tct atg att gct cta gta gac aac ctt gca | | | | 1073 |
| Ala Thr Leu Phe Lys Asn Ser Met Ile Ala Leu Val Asp Asn Leu Ala | | | | |
| 315 | 320 | 325 | | |
| tca aag gaa cca tat tac gtt cgt tgc atc aaa ccc aat gac aag aaa | | | | 1121 |
| Ser Lys Glu Pro Tyr Tyr Val Arg Cys Ile Lys Pro Asn Asp Lys Lys | | | | |
| 330 | 335 | 340 | | |
| tct cca cag ata ttt gat gat gaa cgc tgc cgg cac caa gta gaa tat | | | | 1169 |
| Ser Pro Gln Ile Phe Asp Asp Glu Arg Cys Arg His Gln Val Glu Tyr | | | | |
| 345 | 350 | 355 | | |
| ctt gga cta ctg gaa aat gtg aga gtg cgt cgg gca gga ttt gcc ttc | | | | 1217 |
| Leu Gly Leu Leu Glu Asn Val Arg Val Arg Arg Ala Gly Phe Ala Phe | | | | |
| 360 | 365 | 370 | 375 | |
| cgc cag aca tac gag aag ttt ctt cac agg tat aag atg atc tct gaa | | | | 1265 |
| Arg Gln Thr Tyr Glu Lys Phe Leu His Arg Tyr Lys Met Ile Ser Glu | | | | |
| 380 | 385 | 390 | | |
| ttc acc tgg ccc aac cat gac ctt cct tca gac aaa gag gct gtc aag | | | | 1313 |
| Phe Thr Trp Pro Asn His Asp Leu Pro Ser Asp Lys Glu Ala Val Lys | | | | |
| 395 | 400 | 405 | | |
| aaa cta att gaa cgg tgt ggt ttt cag gat gat gta gct tat ggg aag | | | | 1361 |
| Lys Leu Ile Glu Arg Cys Gly Phe Gln Asp Asp Val Ala Tyr Gly Lys | | | | |
| 410 | 415 | 420 | | |
| acc aaa att ttc att cga aca ccc cga aca ttg ttt acc ttg gaa gaa | | | | 1409 |
| Thr Lys Ile Phe Ile Arg Thr Pro Arg Thr Leu Phe Thr Leu Glu Glu | | | | |
| 425 | 430 | 435 | | |
| ctc cgt gcc cag atg ctc ata agg att gtc ctc ttt cta caa aag gtg | | | | 1457 |
| Leu Arg Ala Gln Met Leu Ile Arg Ile Val Leu Phe Leu Gln Lys Val | | | | |
| 440 | 445 | 450 | 455 | |
| tgg cgg ggc acc ctg gcc cgc atg cgg tac aaa aga acc aag gca gct | | | | 1505 |
| Trp Arg Gly Thr Leu Ala Arg Met Arg Tyr Lys Arg Thr Lys Ala Ala | | | | |

| 460 | | | | | | | | | | 465 | | | | | 470 | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|--|--|--|
| ctg | aca | ata | atc | agg | tac | tac | cgg | cgc | tac | aaa | gtg | aag | tcg | tac | atc | 1553 | | | | |
| Leu | Thr | Ile | Ile | Arg | Tyr | Tyr | Arg | Arg | Tyr | Lys | Val | Lys | Ser | Tyr | Ile | | | | | |
| | | | 475 | | | | | 480 | | | | | 485 | | | | | | | |
| cac | gag | gtg | gcc | aga | cgc | ttc | cat | ggc | gtc | aag | acc | atg | cga | gac | tac | 1601 | | | | |
| His | Glu | Val | Ala | Arg | Arg | Phe | His | Gly | Val | Lys | Thr | Met | Arg | Asp | Tyr | | | | | |
| | | 490 | | | | | 495 | | | | | 500 | | | | | | | | |
| ggg | aag | cac | gtg | aag | tgg | cca | agc | cct | cct | aaa | gtt | ctt | cgc | cgt | ttt | 1649 | | | | |
| Gly | Lys | His | Val | Lys | Trp | Pro | Ser | Pro | Pro | Lys | Val | Leu | Arg | Arg | Phe | | | | | |
| | 505 | | | | | 510 | | | | | 515 | | | | | | | | | |
| gag | gag | gcc | ctg | cag | acg | att | ttc | aat | aga | tgg | aga | gca | tcc | cag | ctc | 1697 | | | | |
| Glu | Glu | Ala | Leu | Gln | Thr | Ile | Phe | Asn | Arg | Trp | Arg | Ala | Ser | Gln | Leu | | | | | |
| 520 | | | | | 525 | | | | | 530 | | | | | 535 | | | | | |
| atc | aag | agc | att | ccg | gcc | tca | gac | ctg | ccc | cag | gtc | agg | gca | aag | gtt | 1745 | | | | |
| Ile | Lys | Ser | Ile | Pro | Ala | Ser | Asp | Leu | Pro | Gln | Val | Arg | Ala | Lys | Val | | | | | |
| | | | | 540 | | | | | 545 | | | | | 550 | | | | | | |
| gca | gcc | gtg | gaa | atg | ttg | aag | ggc | caa | agg | gct | gac | ctc | ggg | ctc | cag | 1793 | | | | |
| Ala | Ala | Val | Glu | Met | Leu | Lys | Gly | Gln | Arg | Ala | Asp | Leu | Gly | Leu | Gln | | | | | |
| | | 555 | | | | | | 560 | | | | | 565 | | | | | | | |
| agg | gcc | tgg | gag | ggc | aac | tat | ctt | gct | tca | aag | cca | gat | aca | cct | cag | 1841 | | | | |
| Arg | Ala | Trp | Glu | Gly | Asn | Tyr | Leu | Ala | Ser | Lys | Pro | Asp | Thr | Pro | Gln | | | | | |
| | | 570 | | | | | 575 | | | | | 580 | | | | | | | | |
| acc | tca | ggc | act | ttt | gtc | cct | gtt | gct | aat | gaa | ttg | aaa | cgg | aag | gac | 1889 | | | | |
| Thr | Ser | Gly | Thr | Phe | Val | Pro | Val | Ala | Asn | Glu | Leu | Lys | Arg | Lys | Asp | | | | | |
| | 585 | | | | | 590 | | | | | 595 | | | | | | | | | |
| aaa | tac | atg | aat | gtc | ctc | ttt | tcc | tgt | cac | gtc | cgt | aag | gta | aat | cga | 1937 | | | | |
| Lys | Tyr | Met | Asn | Val | Leu | Phe | Ser | Cys | His | Val | Arg | Lys | Val | Asn | Arg | | | | | |
| 600 | | | | | 605 | | | | | 610 | | | | | 615 | | | | | |
| ttt | agt | aag | gtg | gaa | gac | aga | gca | att | ttt | gtc | act | gac | cgt | cac | ctg | 1985 | | | | |
| Phe | Ser | Lys | Val | Glu | Asp | Arg | Ala | Ile | Phe | Val | Thr | Asp | Arg | His | Leu | | | | | |
| | | | 620 | | | | | | 625 | | | | | 630 | | | | | | |
| tat | aaa | atg | gat | ccc | act | aaa | cag | tac | aag | gtg | atg | aag | act | atc | cct | 2033 | | | | |
| Tyr | Lys | Met | Asp | Pro | Thr | Lys | Gln | Tyr | Lys | Val | Met | Lys | Thr | Ile | Pro | | | | | |
| | | | 635 | | | | | 640 | | | | | 645 | | | | | | | |
| cta | tac | aat | ttg | act | ggc | ctg | agt | gtc | tcc | aat | gga | aag | gac | caa | ctt | 2081 | | | | |
| Leu | Tyr | Asn | Leu | Thr | Gly | Leu | Ser | Val | Ser | Asn | Gly | Lys | Asp | Gln | Leu | | | | | |
| | | 650 | | | | | 655 | | | | | 660 | | | | | | | | |
| gta | gtg | ttc | cat | acg | aaa | gac | aac | aaa | gac | ctc | att | gtc | tgc | ctc | ttc | 2129 | | | | |
| Val | Val | Phe | His | Thr | Lys | Asp | Asn | Lys | Asp | Leu | Ile | Val | Cys | Leu | Phe | | | | | |
| | 665 | | | | | 670 | | | | | 675 | | | | | | | | | |
| agc | aaa | cag | cca | acc | cat | gag | agt | cga | att | gga | gaa | ctt | gtt | gga | gtg | 2177 | | | | |
| Ser | Lys | Gln | Pro | Thr | His | Glu | Ser | Arg | Ile | Gly | Glu | Leu | Val | Gly | Val | | | | | |
| 680 | | | | | 685 | | | | | 690 | | | | | 695 | | | | | |
| ctg | gtg | aat | cat | ttc | aag | agt | gag | aag | cgc | cac | ctt | caa | gtg | aac | gtc | 2225 | | | | |
| Leu | Val | Asn | His | Phe | Lys | Ser | Glu | Lys | Arg | His | Leu | Gln | Val | Asn | Val | | | | | |
| | | | 700 | | | | | | 705 | | | | | 710 | | | | | | |
| acc | aac | cca | gta | cag | tgc | agc | ctg | cac | ggg | aag | aag | tgc | acc | gtc | tcc | 2273 | | | | |
| Thr | Asn | Pro | Val | Gln | Cys | Ser | Leu | His | Gly | Lys | Lys | Cys | Thr | Val | Ser | | | | | |

| 715 | 720 | 725 | |
|--|-----|-----|------|
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| Val Glu Thr Arg Leu Asn Gln Pro Gln Pro Asp Phe Thr Lys Asn Arg | | | |
| 730 | 735 | 740 | |
| tcg ggc ttc atc ctc agc gtg ccc ggg aac tga cgccccgc ggaggcctgg | | | 2372 |
| Ser Gly Phe Ile Leu Ser Val Pro Gly Asn * | | | |
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 Met Gln Ile Glu Gln Leu Glu Arg Tyr
 1 5
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 Ile Gln Arg Tyr Leu Val Tyr Ala Ile Leu Trp Ser Leu Ser Gly Asp
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 Ser Arg Leu Lys Met Arg Ala Glu Leu Gly Glu Tyr Ile Arg Arg Ile
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 Thr Thr Val Pro Leu Pro Thr Ala Pro Asn Ile Pro Ile Ile Asp Tyr
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 Glu Val Ser Ile Ser Gly Glu Trp Ser Pro Trp Gln Ala Lys Val Pro
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 Gln Ile Glu Val Glu Thr His Lys Val Ala Ala Pro Asp Val Val Val
 75 80 85
 cca acg ctg gac aca gtc cgc cac gaa gcc ctc ttg tac act tgg ctg 399
 Pro Thr Leu Asp Thr Val Arg His Glu Ala Leu Leu Tyr Thr Trp Leu
 90 95 100 105
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| 125 130 135 | |
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| Val Gly Leu Asn Phe Ser Ser Ala Thr Thr Pro Glu Leu Leu Lys | |
| 140 145 150 | |
| act ttt gat cac tac tgc gag tac agg cgc aca cct aat ggg gtg gtt | 591 |
| Thr Phe Asp His Tyr Cys Glu Tyr Arg Arg Thr Pro Asn Gly Val Val | |
| 155 160 165 | |
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| Leu Ala Pro Val Gln Leu Gly Lys Trp Leu Val Leu Phe Cys Asp Glu | |
| 170 175 180 185 | |
| atc aac ttg cca gat atg gat aaa tat ggg acc cag agg gtc ata tcc | 687 |
| Ile Asn Leu Pro Asp Met Asp Lys Tyr Gly Thr Gln Arg Val Ile Ser | |
| 190 195 200 | |
| ttc atc aga cag atg gtg gag cac gga ggc ttt tac cgt acc tca gat | 735 |
| Phe Ile Arg Gln Met Val Glu His Gly Gly Phe Tyr Arg Thr Ser Asp | |
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| Pro Pro Thr Asp Pro Gly Arg Lys Pro Leu Ser His Arg Phe Leu Arg | |
| 235 240 245 | |
| cac gtg cct gtc gtg tat gtg gat tac ccg ggc ccc gcc tcc ctc aca | 879 |
| His Val Pro Val Val Tyr Val Asp Tyr Pro Gly Pro Ala Ser Leu Thr | |
| 250 255 260 265 | |
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| Gln Ile Tyr Gly Thr Phe Asn Arg Ala Met Leu Arg Leu Ile Pro Ser | |
| 270 275 280 | |
| ctg cgg acg tat gca gag ccg ctc act gct gcc atg gtg gag ttc tac | 975 |
| Leu Arg Thr Tyr Ala Glu Pro Leu Thr Ala Ala Met Val Glu Phe Tyr | |
| 285 290 295 | |
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| Thr Met Ser Gln Glu Arg Phe Thr Gln Asp Thr Gln Pro His Tyr Ile | |
| 300 305 310 | |
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| Tyr Ser Pro Arg Glu Met Thr Arg Trp Val Arg Gly Ile Phe Glu Ala | |
| 315 320 325 | |
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| Leu Arg Pro Leu Glu Thr Leu Pro Val Glu Gly Leu Ile Arg Ile Trp | |
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| gca cat gaa gct ctg cgt ctc ttc caa gat aga ctc gta gag gat gag | 1167 |
| Ala His Glu Ala Leu Arg Leu Phe Gln Asp Arg Leu Val Glu Asp Glu | |
| 350 355 360 | |
| gag agg cgt tgg act gat gag aac atc gac acg gtt gct ctg aag cac | 1215 |
| Glu Arg Arg Trp Thr Asp Glu Asn Ile Asp Thr Val Ala Leu Lys His | |
| 365 370 375 | |

| | |
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| 380 385 390 | |
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| Ser Asn Trp Leu Ser Lys Asp Tyr Ile Pro Val Asp Gln Glu Glu Leu | |
| 395 400 405 | |
| aga gat tat gtc aaa gct agg ctg aag gtc ttt tat gaa gaa gaa ctt | 1359 |
| Arg Asp Tyr Val Lys Ala Arg Leu Lys Val Phe Tyr Glu Glu Glu Leu | |
| 410 415 420 425 | |
| gat gtt ccg ctg gtg ctg ttt aat gaa gtc cta gac cac gtg ctg agg | 1407 |
| Asp Val Pro Leu Val Leu Phe Asn Glu Val Leu Asp His Val Leu Arg | |
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| Ile Asp Arg Ile Phe Arg Gln Pro Gln Gly His Leu Leu Leu Ile Gly | |
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| Val Ser Gly Ala Gly Lys Thr Thr Leu Ser Arg Phe Val Ala Trp Met | |
| 460 465 470 | |
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| Asn Gly Leu Ser Val Tyr Gln Ile Lys Val His Arg Lys Tyr Thr Gly | |
| 475 480 485 | |
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| Glu Asp Phe Asp Glu Asp Leu Arg Thr Val Leu Arg Arg Ser Gly Cys | |
| 490 495 500 505 | |
| aaa aat gaa aag ata gca ttt ata atg gat gaa tct aat gtg tta gat | 1647 |
| Lys Asn Glu Lys Ile Ala Phe Ile Met Asp Glu Ser Asn Val Leu Asp | |
| 510 515 520 | |
| tct gga ttc ctg gag cga atg aat acc ctt ctg gcc aat gga gag gtg | 1695 |
| Ser Gly Phe Leu Glu Arg Met Asn Thr Leu Leu Ala Asn Gly Glu Val | |
| 525 530 535 | |
| cct ggt ctc ttt gaa gga gac gag tat gcc acc ttg atg acg cag tgc | 1743 |
| Pro Gly Leu Phe Glu Gly Asp Glu Tyr Ala Thr Leu Met Thr Gln Cys | |
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| aaa gag ggg gca cag aag gaa ggc ctg atg ctg gac tcg cac gag gag | 1791 |
| Lys Glu Gly Ala Gln Lys Glu Gly Leu Met Leu Asp Ser His Glu Glu | |
| 555 560 565 | |
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| Leu Tyr Lys Trp Phe Thr Ser Gln Val Ile Arg Asn Leu His Val Val | |
| 570 575 580 585 | |
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| Phe Thr Met Asn Pro Ser Ser Glu Gly Leu Lys Asp Arg Ala Ala Thr | |
| 590 595 600 | |
| tca cca gca ctt ttc aac agg tgt gtg ttg aat tgg ttt gga gac tgg | 1935 |
| Ser Pro Ala Leu Phe Asn Arg Cys Val Leu Asn Trp Phe Gly Asp Trp | |
| 605 610 615 | |
| tcc acc gaa gca ctg tat cag gtt ggc aaa gaa ttc aca agt aag atg | 1983 |
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| 620 625 630 | |

| | |
|---|------|
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| gca aag cga ggc ggc aga acg atg gcc atc acc cct cgc cac tac ctg Ala Lys Arg Gly Gly Arg Thr Met Ala Ile Thr Pro Arg His Tyr Leu 685 690 695 | 2175 |
| gac ttc atc aat cac tat gcc aac ctg ttc cac gag aag cgg agc gag Asp Phe Ile Asn His Tyr Ala Asn Leu Phe His Glu Lys Arg Ser Glu 700 705 710 | 2223 |
| ctg gag gag cag cag atg cac ttg aac gtg ggg ctc agg aag atc aaa Leu Glu Glu Gln Gln Met His Leu Asn Val Gly Leu Arg Lys Ile Lys 715 720 725 | 2271 |
| gag aca gtc gac cag gta gaa gaa ctg cgt cgt gac ttg agg ata aag Glu Thr Val Asp Gln Val Glu Glu Leu Arg Arg Asp Leu Arg Ile Lys 730 735 740 745 | 2319 |
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| | |
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| gat att gcc agg acg gaa tac ctt tcc aat gct gat gag cgt ctt cgc Asp Ile Ala Arg Thr Glu Tyr Leu Ser Asn Ala Asp Glu Arg Leu Arg 1070 1075 1080 | 3327 |
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| aca cgg acc agc ttc ctg gat gac gcc ttc aga aag aac tta gag agt Thr Arg Thr Ser Phe Leu Asp Asp Ala Phe Arg Lys Asn Leu Glu Ser 1130 1135 1140 1145 | 3519 |

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| ctc aag cag ata cac ttc ttg tac cag tac tcc ctc cag ttt ttc ctg Leu Lys Gln Ile His Phe Leu Tyr Gln Tyr Ser Leu Gln Phe Phe Leu 1340 1345 1350 | 4143 |
| gac att tat cac aac gtc cta tac gag aac ccg aac ctg aag ggt gtc Asp Ile Tyr His Asn Val Leu Tyr Glu Asn Pro Asn Leu Lys Gly Val 1355 1360 1365 | 4191 |
| acc gac cac aca cag cgc ctg tcc att ata aca aag gac ctc ttc cag Thr Asp His Thr Gln Arg Leu Ser Ile Ile Thr Lys Asp Leu Phe Gln 1370 1375 1380 1385 | 4239 |
| gtg gcg ttt aac cga gtg gct cga ggc atg ctg cat cag gac cac att Val Ala Phe Asn Arg Val Ala Arg Gly Met Leu His Gln Asp His Ile 1390 1395 1400 | 4287 |

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| aac acc ttc ctg gag cgc ctg ttc aca acc agg agt ttc gac agt gag Asn Thr Phe Leu Glu Arg Leu Phe Thr Thr Arg Ser Phe Asp Ser Glu 1790 1795 1800 | 5487 |
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| tgc aac aac aac aag ctg tca ctg tcc aat gcc atc tca acc gcc ctt Cys Asn Asn Asn Lys Leu Ser Leu Ser Asn Ala Ile Ser Thr Ala Leu 2090 2095 2100 2105 | 6399 |
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 Met Gln Val Ser Ser Ala Glu Val
 1 5
 cgc atc ggg ccc atg aga ctg acg cag gac cct att cag gtt ttg ctg 281
 Arg Ile Gly Pro Met Arg Leu Thr Gln Asp Pro Ile Gln Val Leu Leu
 10 15 20
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 Ile Phe Ala Lys Glu Asp Ser Gln Ser Asp Gly Phe Trp Trp Ala Cys
 25 30 35 40
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 Asp Arg Ala Gly Tyr Arg Cys Asn Ile Ala Arg Thr Pro Glu Ser Ala
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 Ala Thr Asn Pro Ser Glu His Thr Val Ile Leu Ala Val Val Ser Arg
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 Val Ser Asp Asp His Glu Glu Ala Ser Val Leu Pro Leu Leu His Ala
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 Gly Phe Asn Arg Arg Phe Met Glu Asn Ser Ser Ile Ile Ala Cys Tyr
 125 130 135

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| aat gaa ctg att caa ata gaa cat ggg gaa gtt cgc tcc cag ttc aaa | 665 |
| Asn Glu Leu Ile Gln Ile Glu His Gly Glu Val Arg Ser Gln Phe Lys | |
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| tta cgg gcc tgt aat tca gtg ttt aca gca tta gat cac tgt cat gaa | 713 |
| Leu Arg Ala Cys Asn Ser Val Phe Thr Ala Leu Asp His Cys His Glu | |
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| Ala Ile Glu Ile Thr Ser Asp Asp His Val Ile Gln Tyr Val Asn Pro | |
| 170 175 180 | |
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| Ala Phe Glu Arg Met Met Gly Tyr His Lys Gly Glu Leu Leu Gly Lys | |
| 185 190 195 200 | |
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| Glu Leu Ala Asp Leu Pro Lys Ser Asp Lys Asn Arg Ala Asp Leu Leu | |
| 205 210 215 | |
| gac acc atc aat aca tgc atc aag aag gga aag gag tgg cag ggg gtt | 905 |
| Asp Thr Ile Asn Thr Cys Ile Lys Lys Gly Lys Glu Trp Gln Gly Val | |
| 220 225 230 | |
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| Tyr Tyr Ala Arg Arg Lys Ser Gly Asp Ser Ile Gln Gln His Val Lys | |
| 235 240 245 | |
| atc acc cca gtg att ggc caa gga ggg aaa att agg cat ttt gtc tcg | 1001 |
| Ile Thr Pro Val Ile Gly Gln Gly Gly Lys Ile Arg His Phe Val Ser | |
| 250 255 260 | |
| ctc aag aaa ctg tgt tgt acc act gac aat aat aag cag att cac aag | 1049 |
| Leu Lys Lys Leu Cys Cys Thr Thr Asp Asn Asn Lys Gln Ile His Lys | |
| 265 270 275 280 | |
| att cat cgt gat tca gga gac aat tct cag aca gag cct cat tca ttc | 1097 |
| Ile His Arg Asp Ser Gly Asp Asn Ser Gln Thr Glu Pro His Ser Phe | |
| 285 290 295 | |
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| tct cga ggc agt gat gca cca agc ctg cag aat cgt cgc tat ccg tcc | 1193 |
| Ser Arg Gly Ser Asp Ala Pro Ser Leu Gln Asn Arg Arg Tyr Pro Ser | |
| 315 320 325 | |
| atg gcg agg atc cac tcc atg acc atc gag gct ccc atc aca aag gtt | 1241 |
| Met Ala Arg Ile His Ser Met Thr Ile Glu Ala Pro Ile Thr Lys Val | |
| 330 335 340 | |
| ata aat ata atc aat gca gcc caa gaa aac agc cca gtc aca gta gcg | 1289 |
| Ile Asn Ile Ile Asn Ala Ala Gln Glu Asn Ser Pro Val Thr Val Ala | |
| 345 350 355 360 | |
| gaa gcc ttg gac aga gtt cta gag att tta cgg acc aca gaa ctg tac | 1337 |
| Glu Ala Leu Asp Arg Val Leu Glu Ile Leu Arg Thr Thr Glu Leu Tyr | |
| 365 370 375 | |
| tcc cct cag ctg ggt acc aaa gat gaa gat ccc cac acc agt gat ctt | 1385 |
| Ser Pro Gln Leu Gly Thr Lys Asp Glu Asp Pro His Thr Ser Asp Leu | |
| 380 385 390 | |

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| Val Gly Gly Leu Met Thr Asp Gly Leu Arg Arg Leu Ser Gly Asn Glu | |
| 395 400 405 | |
| tat gtg ttt act aag aat gtg cac cag agt cac agt cac ctt gca atg | 1481 |
| Tyr Val Phe Thr Lys Asn Val His Gln Ser His Ser His Leu Ala Met | |
| 410 415 420 | |
| cca ata acc atc aat gat gtt ccc cct tgt atc tct caa tta ctt gat | 1529 |
| Pro Ile Thr Ile Asn Asp Val Pro Pro Cys Ile Ser Gln Leu Leu Asp | |
| 425 430 435 440 | |
| aat gag gag agt tgg gac ttc aac atc ttt gaa ttg gaa gcc att acg | 1577 |
| Asn Glu Glu Ser Trp Asp Phe Asn Ile Phe Glu Leu Glu Ala Ile Thr | |
| 445 450 455 | |
| cat aaa agg cca ttg gtt tat ctg ggc tta aag gtc ttc tct cgg ttt | 1625 |
| His Lys Arg Pro Leu Val Tyr Leu Gly Leu Lys Val Phe Ser Arg Phe | |
| 460 465 470 | |
| gga gta tgt gag ttt tta aac tgt tct gaa acc act ctt cgg gcc tgg | 1673 |
| Gly Val Cys Glu Phe Leu Asn Cys Ser Glu Thr Thr Leu Arg Ala Trp | |
| 475 480 485 | |
| ttc caa gtg atc gaa gcc aac tac cac tct tcc aat gcc tac cac aac | 1721 |
| Phe Gln Val Ile Glu Ala Asn Tyr His Ser Ser Asn Ala Tyr His Asn | |
| 490 495 500 | |
| tcc acc cat gct gcc gac gtc ctg cac gcc acc gct ttc ttt ctt gga | 1769 |
| Ser Thr His Ala Ala Asp Val Leu His Ala Thr Ala Phe Phe Leu Gly | |
| 505 510 515 520 | |
| aag gaa aga gta aag gga agc ctc gat cag ttg gat gag gtg gca gcc | 1817 |
| Lys Glu Arg Val Lys Gly Ser Leu Asp Gln Leu Asp Glu Val Ala Ala | |
| 525 530 535 | |
| ctc att gct gcc aca gtc cat gac gtg gat cac ccg gga agg acc aac | 1865 |
| Leu Ile Ala Ala Thr Val His Asp Val Asp His Pro Gly Arg Thr Asn | |
| 540 545 550 | |
| tct ttc ctc tgc aat gca ggc agt gag ctt gct gtg ctc tac aat gac | 1913 |
| Ser Phe Leu Cys Asn Ala Gly Ser Glu Leu Ala Val Leu Tyr Asn Asp | |
| 555 560 565 | |
| act gct gtt ctg gag agt cac cac acc gcc ctg gcc ttc cag ctc acg | 1961 |
| Thr Ala Val Leu Glu Ser His His Thr Ala Leu Ala Phe Gln Leu Thr | |
| 570 575 580 | |
| gtc aag gac acc aaa tgc aac att ttc aag aat att gac agg aac cat | 2009 |
| Val Lys Asp Thr Lys Cys Asn Ile Phe Lys Asn Ile Asp Arg Asn His | |
| 585 590 595 600 | |
| tat cga acg ctg cgc cag gct att att gac atg gtt ttg gca aca gag | 2057 |
| Tyr Arg Thr Leu Arg Gln Ala Ile Ile Asp Met Val Leu Ala Thr Glu | |
| 605 610 615 | |
| atg aca aaa cac ttt gaa cat gtg aat aag ttt gtg aac agc atc aac | 2105 |
| Met Thr Lys His Phe Glu His Val Asn Lys Phe Val Asn Ser Ile Asn | |
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| aag cca atg gca gct gag att gaa ggc agc gac tgt gaa tgc aac cct | 2153 |
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| 635 640 645 | |

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ata aca gac atg ttt gat gct tgg gat gcc ttt gca cat ctg cca gcc      2441
Ile Thr Asp Met Phe Asp Ala Trp Asp Ala Phe Ala His Leu Pro Ala
    730                      735                      740

ctg atg caa cat ttg gct gac aac tac aaa cac tgg aag aca cta gat      2489
Leu Met Gln His Leu Ala Asp Asn Tyr Lys His Trp Lys Thr Leu Asp
    745                      750                      755                      760

gac cta aag tgc aaa agt ttg agg ctt cca tct gac agc taa agccaag      2538
Asp Leu Lys Cys Lys Ser Leu Arg Leu Pro Ser Asp Ser *
                      765                      770

ccacagaggg ggcctcttga ccgacaaagg acactgtgaa tcacagtagc gtaaacaaga      2598

ggccttcctt tctaatagaca atgacaggta ttggtgaagg agctaattgtt taatatattga      2658

ccttgaatca ttcaagtccc caaatttcat tcttagaaaag ttatgttcca tgaagaaaaa      2718

tatatgttct tttgaatact taatgacaga acaaatactt ggcaaactcc tttgctctgc      2778

tgtcatcctg tgtacccttg tcaatccatg gagctgggtc actgtaacta gcaggccaca      2838

ggaagcaaag ccttggtgcc tgtgagctca tctcccagga tgggtgactaa gtagcttagc      2898

tagtgatcag ctcatccttt accataaaaag tcatcattgc tgttttagctt gactgttttc      2958

ctcaagaaca tcgatctgaa ggattcataa ggagcttata tgaacagatt tatctaagaa      3018

aaaaaaaaaa                                                                3028

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<210> 820
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 <222> (385)..(1203)

<220>
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<222> (1) ... (1259)

<223> n = a, t, c or g

<400> 820

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tgtttgata ttttgaagtc acatagacac caactaatat ctgtcaccca ctgtgtcatc      180
ggatggatcg ggtgacactc caaatcagtc gtgcaggtag ttctgagtgt gcagccatta      240
gccaatgttg agtcacctca tgttgcacgt gttggctgac tggetgcctt tccccctgcc      300
agggagaagc gcattggcat tgacctggtg cacgacacag tggagcatga gctgataaag      360
gaggctgaga tcatccaggg catt      atg gct ctg ctg acc cgt acc ttg gag      411
                                Met Ala Leu Leu Thr Arg Thr Leu Glu
                                1                                5

gag gct tcc gag cag att cgg atg aac cgc tct gcc aag tac aat ctt      459
Glu Ala Ser Glu Gln Ile Arg Met Asn Arg Ser Ala Lys Tyr Asn Leu
 10                                15                                20                                25

gag aag gat ttg aag gac aag ttt gtg gcc ctg acc ata gat gat atc      507
Glu Lys Asp Leu Lys Asp Lys Phe Val Ala Leu Thr Ile Asp Asp Ile
                                30                                35                                40

tgc ttc tcg ctc aac aac aac tca cca aac atc aga tat tct gag aac      555
Cys Phe Ser Leu Asn Asn Asn Ser Pro Asn Ile Arg Tyr Ser Glu Asn
                                45                                50                                55

gcc gtg agg att gag cca aac tcc gtg agt ctg gaa gac tgg ttg gac      603
Ala Val Arg Ile Glu Pro Asn Ser Val Ser Leu Glu Asp Trp Leu Asp
                                60                                65                                70

ttc tcc agc acc aat gtg gag aag gct gac aag cag cgg aac aac tcc      651
Phe Ser Ser Thr Asn Val Glu Lys Ala Asp Lys Gln Arg Asn Asn Ser
                                75                                80                                85

ctg atg ctg aaa gcc ctg gtg gat cga atc ctg tcc atg aca gcc aat      699
Leu Met Leu Lys Ala Leu Val Asp Arg Ile Leu Ser Met Thr Ala Asn
                                90                                95                                100                                105

gat ctg cgc aag cag tgt gat gtg gtg cac acg gca ttc aag aat ggg      747
Asp Leu Arg Lys Gln Cys Asp Val Val His Thr Ala Phe Lys Asn Gly
                                110                                115                                120

ctg aag gat aca aag gat gcc agg gac aag ctg gct gat cat ctg gcc      795
Leu Lys Asp Thr Lys Asp Ala Arg Asp Lys Leu Ala Asp His Leu Ala
                                125                                130                                135

aag gtc atg gaa gag att gct tcc cag gag aaa aat att aca gct ctt      843
Lys Val Met Glu Glu Ile Ala Ser Gln Glu Lys Asn Ile Thr Ala Leu
                                140                                145                                150

gaa aag gcc atc ctt gac caa gaa ggg cca gcc aag gtg gct cat acg      891
Glu Lys Ala Ile Leu Asp Gln Glu Gly Pro Ala Lys Val Ala His Thr
                                155                                160                                165

cgc ttg gag acc agg aca cac cgg ccg aac gtg gag ctg tgt cgt gat      939
Arg Leu Glu Thr Arg Thr His Arg Pro Asn Val Glu Leu Cys Arg Asp
                                170                                175                                180                                185

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gtc gca caa tat agg cta atg aag gag gtt caa gag atc acc cac aat 987
 Val Ala Gln Tyr Arg Leu Met Lys Glu Val Gln Glu Ile Thr His Asn
 190 195 200
 gtc gca aga ttg aag gaa act tta gcc caa gct cag gca gag ctg aaa 1035
 Val Ala Arg Leu Lys Glu Thr Leu Ala Gln Ala Gln Ala Glu Leu Lys
 205 210 215
 ggg ctg cat cgc aga cag ctt gcc ctg cag gag gag atc cag gtc aaa 1083
 Gly Leu His Arg Arg Gln Leu Ala Leu Gln Glu Glu Ile Gln Val Lys
 220 225 230
 gag aac acc att tat atc gac gaa gtg ctg tgt atg cag atg agg aaa 1131
 Glu Asn Thr Ile Tyr Ile Asp Glu Val Leu Cys Met Gln Met Arg Lys
 235 240 245
 tcc atc cca ctt cgg gat ggg gaa gac cat ggg gtc tgg gct ggg ggc 1179
 Ser Ile Pro Leu Arg Asp Gly Glu Asp His Gly Val Trp Ala Gly Gly
 250 255 260 265
 ctc cgc cct gat gct gtc tgc taa tagtagggct agttccaatt ctcattaaac 1233
 Leu Arg Pro Asp Ala Val Cys *
 270
 cacattgtaa acagtaaaaa aaaaaa 1259

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 gctgggtacg cgtaagcttg ggccctcga gggatactct agagcggccg cccgggagtc 120
 cgagcgccag ctgcgcctcc gcctctgcgt cctcaacgag atcttgggca ccgagaggga 180
 ctacgtgggc accttgcgct tcttgagtc ggcattcctg catcgcatcc ggcagaacgt 240
 ggccgactca gtggagaagg gcctcacgga ggagaatgtc aaggctcctgt tctcgaacat 300
 cgaagacatc ctggaagttc ataaggattt cttggccgcc ttggagtatt gtttacaccc 360
 ggagccgcag tctcagcatg aacttgggaa tgttttctta aaattcaagg acaagttctg 420
 cgtgtacgag gagtattgca gcaaccatga gaaagccctg aggctgctgg tggagctgaa 480
 caagatccct accgtgcgcg ccttcctttt gagctgc atg ctt ctg gga ggc cgg 535
 Met Leu Leu Gly Gly Arg
 1 5
 aag acc acg gac atc cct ttg gaa ggc tac ctg ttg tct ccg atc cag 583
 Lys Thr Thr Asp Ile Pro Leu Glu Gly Tyr Leu Leu Ser Pro Ile Gln
 10 15 20
 agg atc tgc aag tac ccg ctc ctc ctt aag gag ctg gcc aag agg act 631

| | | | | | | | | | | | | | | | | | |
|-------------|------------|------------|------------|------------|-------------|-----|-----|-----|-----|-----|-----|-----|--------|------|-----|--|------|
| Arg | Ile | Cys | Lys | Tyr | Pro | Leu | Leu | Leu | Lys | Glu | Leu | Ala | Lys | Arg | Thr | | |
| | | 25 | | | | | 30 | | | | | 35 | | | | | |
| ccc | ggc | aag | cac | cca | gac | cac | ccc | gcg | gtc | cag | agt | gcc | ctg | cag | gcc | | 679 |
| Pro | Gly | Lys | His | Pro | Asp | His | Pro | Ala | Val | Gln | Ser | Ala | Leu | Gln | Ala | | |
| | | 40 | | | | 45 | | | | | 50 | | | | | | |
| atg | aag | acc | gtt | tgc | tcc | aac | atc | aat | gag | acc | aag | cgg | cag | atg | gag | | 727 |
| Met | Lys | Thr | Val | Cys | Ser | Asn | Ile | Asn | Glu | Thr | Lys | Arg | Gln | Met | Glu | | |
| | | 55 | | | 60 | | | | 65 | | | | 70 | | | | |
| aag | ctg | gaa | gcc | ctg | gag | cag | ctg | cag | tcc | cac | atc | gaa | ggc | tgg | gag | | 775 |
| Lys | Leu | Glu | Ala | Leu | Glu | Gln | Leu | Gln | Ser | His | Ile | Glu | Gly | Trp | Glu | | |
| | | | 75 | | | | 80 | | | | | | 85 | | | | |
| ggt | tcc | aac | ctc | aca | gac | atc | tgc | act | cag | ctc | ctc | ctg | caa | ggg | act | | 823 |
| Gly | Ser | Asn | Leu | Thr | Asp | Ile | Cys | Thr | Gln | Leu | Leu | Leu | Gln | Gly | Thr | | |
| | | | 90 | | | | 95 | | | | | | 100 | | | | |
| ttg | tta | aag | atc | tct | gcg | ggc | aac | atc | cag | gaa | agg | gcc | ttc | ttc | ctc | | 871 |
| Leu | Leu | Lys | Ile | Ser | Ala | Gly | Asn | Ile | Gln | Glu | Arg | Ala | Phe | Phe | Leu | | |
| | | 105 | | | | | 110 | | | | | 115 | | | | | |
| ttc | gac | aac | ctt | ctc | gtc | tac | tgc | aag | cgg | aaa | tcc | agg | gtc | acc | ggg | | 919 |
| Phe | Asp | Asn | Leu | Leu | Val | Tyr | Cys | Lys | Arg | Lys | Ser | Arg | Val | Thr | Gly | | |
| | | 120 | | | | 125 | | | | | 130 | | | | | | |
| agc | aag | aag | tcc | acc | aag | agg | acc | aaa | tcc | atc | aac | ggc | tcc | ctc | tac | | 967 |
| Ser | Lys | Lys | Ser | Thr | Lys | Arg | Thr | Lys | Ser | Ile | Asn | Gly | Ser | Leu | Tyr | | |
| | | 135 | | | 140 | | | | 145 | | | | | 150 | | | |
| atc | ttc | agg | ggt | cga | atc | aac | act | gaa | gtc | atg | gag | gtg | gag | aat | gtg | | 1015 |
| Ile | Phe | Arg | Gly | Arg | Ile | Asn | Thr | Glu | Val | Met | Glu | Val | Glu | Asn | Val | | |
| | | | 155 | | | | | 160 | | | | | 165 | | | | |
| gaa | gat | ggg | aca | ggt | agc | ccc | tcc | ccc | agc | ctt | gcc | tga | gccctg | cctg | | | 1064 |
| Glu | Asp | Gly | Thr | Gly | Ser | Pro | Ser | Pro | Ser | Leu | Ala | * | | | | | |
| | | 170 | | | | | 175 | | | | | | | | | | |
| agccctgcct | gctccctggc | actctctctg | tttcatttaa | atatattttt | ttctttttatc | | | | | | | | | | | | 1124 |
| atgagatgta | atctacctac | agaaaagtgc | ccagagcata | gatgcatgaa | gcgaacatct | | | | | | | | | | | | 1184 |
| gggtgggttag | cattcaagtt | aagaaataaa | acactgcacc | ccaaatcctt | cctccttgca | | | | | | | | | | | | 1244 |
| atgccttctt | ccccctagaa | gtaaccactg | tctgaatttt | gtgatgatca | ttttcttgct | | | | | | | | | | | | 1304 |
| ttttaaagac | atttttacct | cctaagcatt | tatgactaaa | cattttaatt | aaaatttcta | | | | | | | | | | | | 1364 |
| tttttgagcc | ttaaaaaaaa | aaa | | | | | | | | | | | | | | | 1387 |

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accccagccc ggcccgggaac actctgggcg agacggcggt ggcaactctc cccttgccgc 180
c atg cac gac gct ttc gag cca gtg ccg atc cta gaa aag ctg cct 226
Met His Asp Ala Phe Glu Pro Val Pro Ile Leu Glu Lys Leu Pro
1 5 10 15
ctg caa atc gac tgt ctg gct gcc tgg gag gaa tgg ctt ctt gtg gga 274
Leu Gln Ile Asp Cys Leu Ala Ala Trp Glu Glu Trp Leu Leu Val Gly
20 25 30
acc aaa caa gga cat ctt ctt ctc tat agg att cgg aag gac gtt ggt 322
Thr Lys Gln Gly His Leu Leu Leu Tyr Arg Ile Arg Lys Asp Val Gly
35 40 45
tgc aac aga ttt gaa gtg aca cta gag aaa tcc aat aag aac ttc tcc 370
Cys Asn Arg Phe Glu Val Thr Leu Glu Lys Ser Asn Lys Asn Phe Ser
50 55 60
aaa aag att cag cag atc cat gtg gtt tcc cag ttt aag att ctg gtc 418
Lys Lys Ile Gln Gln Ile His Val Val Ser Gln Phe Lys Ile Leu Val
65 70 75
agc ttg tta gaa aat aac att tat gtc cat gac cta ttg aca ttt caa 466
Ser Leu Leu Glu Asn Asn Ile Tyr Val His Asp Leu Leu Thr Phe Gln
80 85 90 95
caa atc act acg gtt tca aag gca aag gga gca tca ctg ttt act tgt 514
Gln Ile Thr Thr Val Ser Lys Ala Lys Gly Ala Ser Leu Phe Thr Cys
100 105 110
gac ctc cag cac aca gag acc ggt gag gag gtg tta cgg atg tgt gtg 562
Asp Leu Gln His Thr Glu Thr Gly Glu Glu Val Leu Arg Met Cys Val
115 120 125
gca gta aaa aag agg ctg cag ctc tat ttc tgg aag gac aga gaa ttt 610
Ala Val Lys Lys Arg Leu Gln Leu Tyr Phe Trp Lys Asp Arg Glu Phe
130 135 140
cat gaa ttg cag ggg gac ttt agt gtg cca gat gtg ccc aag tcc atg 658
His Glu Leu Gln Gly Asp Phe Ser Val Pro Asp Val Pro Lys Ser Met
145 150 155
gcg tgg tgt gaa aat tct atc tgt gtg ggt ttc aag aga gac tac tac 706
Ala Trp Cys Glu Asn Ser Ile Cys Val Gly Phe Lys Arg Asp Tyr Tyr
160 165 170 175
cta ata agg gtg gat gga aag ggg tcc atc aaa gag ctc ttt cca aca 754
Leu Ile Arg Val Asp Gly Lys Gly Ser Ile Lys Glu Leu Phe Pro Thr
180 185 190
gga aaa cag ctg gag ccc tta gtt gca cct ctg gca gat gga aaa gtg 802
Gly Lys Gln Leu Glu Pro Leu Val Ala Pro Leu Ala Asp Gly Lys Val
195 200 205
gct gtg ggc cag gat gat ctc acc gtg gta ctc aat gag gaa ggg atc 850
Ala Val Gly Gln Asp Asp Leu Thr Val Val Leu Asn Glu Glu Gly Ile
210 215 220
tgc aca cag aaa tgt gcc ctg aac tgg acg gac ata cca gtg gcc atg 898
Cys Thr Gln Lys Cys Ala Leu Asn Trp Thr Asp Ile Pro Val Ala Met

| 225 | 230 | 235 | |
|---|-----|-----|------|
| gag cac cag cct ccc tac atc att gca gtg ttg cct cga tat gtt gag Glu His Gln Pro Pro Tyr Ile Ile Ala Val Leu Pro Arg Tyr Val Glu 240 245 250 255 | | | 946 |
| atc cga aca ttt gaa ccg agg ctt ctg gtc caa agc att gaa ttg caa Ile Arg Thr Phe Glu Pro Arg Leu Leu Val Gln Ser Ile Glu Leu Gln 260 265 270 | | | 994 |
| agg ccc cgt ttc att acc tca gga gga tca aac att atc tat gtg gcc Arg Pro Arg Phe Ile Thr Ser Gly Gly Ser Asn Ile Ile Tyr Val Ala 275 280 285 | | | 1042 |
| agc aat cat ttt gtt tgg aga ctc atc cct gtc ccc atg gca acc caa Ser Asn His Phe Val Trp Arg Leu Ile Pro Val Pro Met Ala Thr Gln 290 295 300 | | | 1090 |
| atc caa caa ctt ctc cag gac aag cag ttt gaa ttg gct ctg cag ctc Ile Gln Gln Leu Leu Gln Asp Lys Gln Phe Glu Leu Ala Leu Gln Leu 305 310 315 | | | 1138 |
| gca gaa atg aaa gat gat tct gac agt gaa aag cag caa caa att cat Ala Glu Met Lys Asp Asp Ser Asp Ser Glu Lys Gln Gln Gln Ile His 320 325 330 335 | | | 1186 |
| cac atc aag aac ttg tat gcc ttc aac ctc ttc tgc cag aag cgt ttt His Ile Lys Asn Leu Tyr Ala Phe Asn Leu Phe Cys Gln Lys Arg Phe 340 345 350 | | | 1234 |
| gat gag tcc atg cag gtc ttt gct aaa ctt ggc aca gat ccc acc cat Asp Glu Ser Met Gln Val Phe Ala Lys Leu Gly Thr Asp Pro Thr His 355 360 365 | | | 1282 |
| gtg atg ggc ctg tac cct gac ctg ctg ccc aca gac tac aga aag cag Val Met Gly Leu Tyr Pro Asp Leu Leu Pro Thr Asp Tyr Arg Lys Gln 370 375 380 | | | 1330 |
| ttg cag tat ccc aac cca ttg cct gtg ctc tcc ggg gct gaa ttg gag Leu Gln Tyr Pro Asn Pro Leu Pro Val Leu Ser Gly Ala Glu Leu Glu 385 390 395 | | | 1378 |
| aag gct cac tta gct ctg att gac tac ctg aca cag aaa cga agt caa Lys Ala His Leu Ala Leu Ile Asp Tyr Leu Thr Gln Lys Arg Ser Gln 400 405 410 415 | | | 1426 |
| ttg gta aag aag ctg aat gac tct gat cac cag tca agc acc tca ccg Leu Val Lys Lys Leu Asn Asp Ser Asp His Gln Ser Ser Thr Ser Pro 420 425 430 | | | 1474 |
| ctc atg gaa ggc act ccc acc atc aaa tcc aag aag aag ctg cta caa Leu Met Glu Gly Thr Pro Thr Ile Lys Ser Lys Lys Lys Leu Leu Gln 435 440 445 | | | 1522 |
| atc atc gac acc acc ctg ctc aag tgc tat ctc cat aca aat gtg gcc Ile Ile Asp Thr Thr Leu Leu Lys Cys Tyr Leu His Thr Asn Val Ala 450 455 460 | | | 1570 |
| ctg gtg gcc ccc ttg cta cgc ctg gag aac aat cac tgc cac atc gag Leu Val Ala Pro Leu Leu Arg Leu Glu Asn Asn His Cys His Ile Glu 465 470 475 | | | 1618 |
| gag agc gag cac gtg ctg aag aag gct cac aag tac agt gag ctt atc Glu Ser Glu His Val Leu Lys Lys Ala His Lys Tyr Ser Glu Leu Ile | | | 1666 |

| 480 | 485 | 490 | 495 | |
|---|-----|-----|-----|------|
| atc ctg tat gag aag aag ggg ctc cac gag aaa gct ctg cag gtg ctc Ile Leu Tyr Glu Lys Lys Gly Leu His Glu Lys Ala Leu Gln Val Leu 500 505 510 | | | | 1714 |
| gtg gac cag tcc aag aaa gcc aac tcc cct ctg aaa ggc cac gag agg Val Asp Gln Ser Lys Lys Ala Asn Ser Pro Leu Lys Gly His Glu Arg 515 520 525 | | | | 1762 |
| aca gtg cag tat ctg cag cat ctg ggc aca gaa aac ctg cat ttg att Thr Val Gln Tyr Leu Gln His Leu Gly Thr Glu Asn Leu His Leu Ile 530 535 540 | | | | 1810 |
| ttc tcc tac tca gtg tgg gtg ctg aga gac ttc cca gaa gat ggc ctg Phe Ser Tyr Ser Val Trp Val Leu Arg Asp Phe Pro Glu Asp Gly Leu 545 550 555 | | | | 1858 |
| aag ata ttt act gaa gat ctc ccg gaa gtg gag tct ctg cca cgt gat Lys Ile Phe Thr Glu Asp Leu Pro Glu Val Glu Ser Leu Pro Arg Asp 560 565 570 575 | | | | 1906 |
| cga gtc ctc ggc ttc tta ata gag aat ttt aag ggt ctg gct att cct Arg Val Leu Gly Phe Leu Ile Glu Asn Phe Lys Gly Leu Ala Ile Pro 580 585 590 | | | | 1954 |
| tat ctg gaa cac atc atc cat gtt tgg gag gag aca ggc tct cgg ttc Tyr Leu Glu His Ile Ile His Val Trp Glu Glu Thr Gly Ser Arg Phe 595 600 605 | | | | 2002 |
| cac aac tgc ctg atc cag cta tac tgt gag aag gtg caa ggt ctg atg His Asn Cys Leu Ile Gln Leu Tyr Cys Glu Lys Val Gln Gly Leu Met 610 615 620 | | | | 2050 |
| aag gag tat ctc ctg tcc ttc cct gca ggc aaa acc cca gtc cca gct Lys Glu Tyr Leu Leu Ser Phe Pro Ala Gly Lys Thr Pro Val Pro Ala 625 630 635 | | | | 2098 |
| gga gag gaa gag ggt gag ctg gga gaa tac cgg caa aag ctc ctc atg Gly Glu Glu Glu Gly Glu Leu Gly Glu Tyr Arg Gln Lys Leu Leu Met 640 645 650 655 | | | | 2146 |
| ttc ttg gag att tcc agc tac tat gat cca ggc cgg ctc atc tgt gat Phe Leu Glu Ile Ser Ser Tyr Tyr Asp Pro Gly Arg Leu Ile Cys Asp 660 665 670 | | | | 2194 |
| ttt ccc ttt gat ggc ctc tta gaa gaa cga gct ctc ctg ttg ggg cgc Phe Pro Phe Asp Gly Leu Leu Glu Glu Arg Ala Leu Leu Leu Gly Arg 675 680 685 | | | | 2242 |
| atg ggg aaa cat gaa caa gct ctt ttc att tat gtc cac atc ttg aag Met Gly Lys His Glu Gln Ala Leu Phe Ile Tyr Val His Ile Leu Lys 690 695 700 | | | | 2290 |
| gat aca agg atg gct gag gag tac tgc cac aaa cac tat gac cga aac Asp Thr Arg Met Ala Glu Glu Tyr Cys His Lys His Tyr Asp Arg Asn 705 710 715 | | | | 2338 |
| aaa gat ggc aac aaa gat gtg tat ctg tcc ctg ctt cgg atg tac ctg Lys Asp Gly Asn Lys Asp Val Tyr Leu Ser Leu Leu Arg Met Tyr Leu 720 725 730 735 | | | | 2386 |
| tcg ccc ccc agc att cac tgc ctg ggg cca atc aag ctg gaa cta ctg Ser Pro Pro Ser Ile His Cys Leu Gly Pro Ile Lys Leu Glu Leu Leu 2434 | | | | |

| | 740 | 745 | 750 | |
|--|--|-----|-----|------|
| | gag cca aaa gcc aac ctc cag gcc gct ctg cag gtc ctc gag cta cac | | | 2482 |
| | Glu Pro Lys Ala Asn Leu Gln Ala Ala Leu Gln Val Leu Glu Leu His | | | |
| | 755 | 760 | 765 | |
| | cac agc aaa ctg gac acc acc aag gcc ctc aac ctt ctg cca gca aac | | | 2530 |
| | His Ser Lys Leu Asp Thr Thr Lys Ala Leu Asn Leu Leu Pro Ala Asn | | | |
| | 770 | 775 | 780 | |
| | act cag atc aat gac ata cgc atc ttc ctg gaa aag gtc ttg gaa gaa | | | 2578 |
| | Thr Gln Ile Asn Asp Ile Arg Ile Phe Leu Glu Lys Val Leu Glu Glu | | | |
| | 785 | 790 | 795 | |
| | aat gca caa aag aaa cgg ttc aat caa gtg ctc aag aac ctt ctc cat | | | 2626 |
| | Asn Ala Gln Lys Lys Arg Phe Asn Gln Val Leu Lys Asn Leu Leu His | | | |
| | 800 | 805 | 810 | 815 |
| | gca gaa ttc ctg agg gtc cag gaa gag cgg att tta cac cag cag gtg | | | 2674 |
| | Ala Glu Phe Leu Arg Val Gln Glu Glu Arg Ile Leu His Gln Gln Val | | | |
| | 820 | 825 | 830 | |
| | aag tgc atc atc aca gag gag aag gtg tgc atg gtg tgt aag aag aag | | | 2722 |
| | Lys Cys Ile Ile Thr Glu Glu Lys Val Cys Met Val Cys Lys Lys Lys | | | |
| | 835 | 840 | 845 | |
| | att ggg aac agt gca ttt gca aga tac ccc aat gga gtg gtc gtc cat | | | 2770 |
| | Ile Gly Asn Ser Ala Phe Ala Arg Tyr Pro Asn Gly Val Val Val His | | | |
| | 850 | 855 | 860 | |
| | tac ttc tgt tcc aaa gag gta aac cca gct gac act tga gccagcatc | | | 2819 |
| | Tyr Phe Cys Ser Lys Glu Val Asn Pro Ala Asp Thr * | | | |
| | 865 | 870 | 875 | |
| | ctggggatcc agcggatgga cagcttggct ctcccagaga ggtgaaggag cacctggcct | | | 2879 |
| | taggaatcct ggctgccacc accacaaggc tccccatttg gacattactg gctatcttgt | | | 2939 |
| | gccctggaac aactctgaat taattagact catggtctgg cattgccagc tttttaatgg | | | 2999 |
| | gaaaagagat tagttatacc ttataccatt atgttggtgg caattccaga gaattcagta | | | 3059 |
| | cctgcttggc caggaggatg tgcaccatct tgcctttgca caccagtcac ctgaacaagg | | | 3119 |
| | aaacttgtca caagtgtttg taaccatggg gttgttcac aagggtttt ctattaagta | | | 3179 |
| | catgacttca caaggaccgc tcagcatggc tctactggaga gttccatgag agaacagcac | | | 3239 |
| | tcaagcttct ggccgcatgg acccgatggc tcgcattctg tgtagtgttt tacgtctcca | | | 3299 |
| | tggttaactgt gccctgcacc cctcggtagc cgccctgtta gttttcagtc tccttttctt | | | 3359 |
| | tctcaccatt tatcacttcc ctactgcc taccaggct ttctctccca cttccctgac | | | 3419 |
| | tctgggaata actaatatth aagcaaggta agatgagaag caagggtct cagttctagg | | | 3479 |
| | aatacagtgc tagttgattg tcaggtatgt tgtaaataga ccctctttgg ccatacactc | | | 3539 |
| | catgcctaga tgcctcggag agcatcattc tctgcctagg caaggccctg catcccttgc | | | 3599 |
| | ctcaggccgg gctgagtgtg actgcagctc ctgaggatgg gcctgccctg tctgggggtat | | | 3659 |
| | gcgtgatccc tagatacatg ttcccacaga ggtgcctgct ccgtcttcgc tcaccagaca | | | 3719 |

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aaa 4862

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 <213> Homo sapiens

<220>
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 <222> (69)..(1064)

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gcggccgc atg agc cgc gcg cgt ggg gcg ctg tgc cgg gcc tgc ctc gcg 110
      Met Ser Arg Ala Arg Gly Ala Leu Cys Arg Ala Cys Leu Ala
        1              5              10
ctg gcc gcg gcc ctg gcc gcg ctg ctg tta ctg ccg ctg ccg ctg ccc 158
Leu Ala Ala Ala Leu Ala Ala Leu Leu Leu Leu Pro Leu Pro Leu Pro
  15              20              25              30
cgc gcg ccc gcc ccg gcc cgg acc ccc gcc ccg gcc ccg cgc gcg ccc 206

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|
| Arg | Ala | Pro | Ala | Pro | Ala | Arg | Thr | Pro | Ala | Pro | Ala | Pro | Arg | Ala | Pro | | |
| | | | | 35 | | | | | 40 | | | | | 45 | | | |
| ccg | tcc | cgg | ccc | gct | gcc | ccc | agc | ctg | cgg | cct | gac | gac | gtc | ttc | atc | | 254 |
| Pro | Ser | Arg | Pro | Ala | Ala | Pro | Ser | Leu | Arg | Pro | Asp | Asp | Val | Phe | Ile | | |
| | | | 50 | | | | | 55 | | | | | 60 | | | | |
| gcc | gtc | aag | acc | acc | cgg | aag | aac | cac | ggg | ccg | cgc | ctg | cgg | ctg | ctg | | 302 |
| Ala | Val | Lys | Thr | Thr | Arg | Lys | Asn | His | Gly | Pro | Arg | Leu | Arg | Leu | Leu | | |
| | | | 65 | | | | 70 | | | | | 75 | | | | | |
| ctg | cgc | acc | tgg | atc | tcc | cgg | gcc | cgc | cag | cag | acg | ttt | atc | ttc | acc | | 350 |
| Leu | Arg | Thr | Trp | Ile | Ser | Arg | Ala | Arg | Gln | Gln | Thr | Phe | Ile | Phe | Thr | | |
| | 80 | | | | | 85 | | | | | 90 | | | | | | |
| gac | ggg | gac | gac | cct | gag | ctc | gag | ctc | cag | ggc | ggc | gac | cgt | gtc | atc | | 398 |
| Asp | Gly | Asp | Asp | Pro | Glu | Leu | Glu | Leu | Gln | Gly | Gly | Asp | Arg | Val | Ile | | |
| 95 | | | | | 100 | | | | | 105 | | | | | 110 | | |
| aac | acc | aac | tgc | tgc | gcg | gtg | cgc | act | cgt | cag | gcc | ctc | tgc | tgc | aag | | 446 |
| Asn | Thr | Asn | Cys | Ser | Ala | Val | Arg | Thr | Arg | Gln | Ala | Leu | Cys | Cys | Lys | | |
| | | | | 115 | | | | | 120 | | | | | 125 | | | |
| atg | tcc | gtg | gag | tat | gac | aag | ttc | att | gag | tcc | ggg | cgc | aag | tgg | ttt | | 494 |
| Met | Ser | Val | Glu | Tyr | Asp | Lys | Phe | Ile | Glu | Ser | Gly | Arg | Lys | Trp | Phe | | |
| | | | 130 | | | | | 135 | | | | | 140 | | | | |
| tgc | cac | gtg | gat | gat | gac | aat | tat | gtg | aac | gca | agg | agc | ctc | ctg | cac | | 542 |
| Cys | His | Val | Asp | Asp | Asp | Asn | Tyr | Val | Asn | Ala | Arg | Ser | Leu | Leu | His | | |
| | | | 145 | | | | 150 | | | | | 155 | | | | | |
| ctg | ctc | tcc | agc | ttc | tca | ccc | agc | cag | gac | gtc | tac | ctg | ggg | cgg | ccc | | 590 |
| Leu | Leu | Ser | Ser | Phe | Ser | Pro | Ser | Gln | Asp | Val | Tyr | Leu | Gly | Arg | Pro | | |
| | 160 | | | | | 165 | | | | | 170 | | | | | | |
| agc | ctg | gac | cac | ccc | att | gag | gcc | acc | gag | agg | gtc | cag | ggg | ggc | aga | | 638 |
| Ser | Leu | Asp | His | Pro | Ile | Glu | Ala | Thr | Glu | Arg | Val | Gln | Gly | Gly | Arg | | |
| 175 | | | | | 180 | | | | | 185 | | | | | 190 | | |
| act | gtg | acc | acg | gtc | aag | ttc | tgg | ttt | gct | act | ggg | ggg | gcc | ggg | ttc | | 686 |
| Thr | Val | Thr | Thr | Val | Lys | Phe | Trp | Phe | Ala | Thr | Gly | Gly | Ala | Gly | Phe | | |
| | | | | 195 | | | | 200 | | | | | 205 | | | | |
| tgc | ctc | agc | aga | ggc | ctt | gcc | ctc | aag | atg | agc | cca | tgg | gcc | agc | ctg | | 734 |
| Cys | Leu | Ser | Arg | Gly | Leu | Ala | Leu | Lys | Met | Ser | Pro | Trp | Ala | Ser | Leu | | |
| | | | 210 | | | | | 215 | | | | | 220 | | | | |
| ggc | agc | ttc | atg | agc | aca | gct | gag | cag | gtg | cgg | ctg | ccg | gat | gac | tgc | | 782 |
| Gly | Ser | Phe | Met | Ser | Thr | Ala | Glu | Gln | Val | Arg | Leu | Pro | Asp | Asp | Cys | | |
| | | 225 | | | | 230 | | | | | | 235 | | | | | |
| aca | gtt | ggc | tac | atc | gtg | gag | ggg | ctc | ctg | ggc | gcc | cgc | ctg | ctg | cac | | 830 |
| Thr | Val | Gly | Tyr | Ile | Val | Glu | Gly | Leu | Leu | Gly | Ala | Arg | Leu | Leu | His | | |
| | 240 | | | | | 245 | | | | | 250 | | | | | | |
| agc | ccc | ctc | ttc | cac | tct | cac | ctg | gag | aac | ctg | cag | agg | ctg | ccg | ccc | | 878 |
| Ser | Pro | Leu | Phe | His | Ser | His | Leu | Glu | Asn | Leu | Gln | Arg | Leu | Pro | Pro | | |
| 255 | | | | | 260 | | | | 265 | | | | | | 270 | | |
| gac | acc | ctg | ctc | cag | cag | gtt | acc | ttg | agc | cat | ggg | ggg | cct | gag | aac | | 926 |
| Asp | Thr | Leu | Leu | Gln | Gln | Val | Thr | Leu | Ser | His | Gly | Gly | Pro | Glu | Asn | | |
| | | | | 275 | | | | 280 | | | | | 285 | | | | |
| cca | cag | aac | gtg | gtg | aac | gtg | gct | gga | ggc | ttc | agc | ctg | cat | caa | gac | | 974 |

Pro Gln Asn Val Val Asn Val Ala Gly Gly Phe Ser Leu His Gln Asp
 290 295 300

ccc aca cgg ttt aag tct atc cat tgt ctt ctg tac cca gac acg gac 1022
 Pro Thr Arg Phe Lys Ser Ile His Cys Leu Leu Tyr Pro Asp Thr Asp
 305 310 315

tgg tgt ccc agg cag aaa cag ggc gcc ccg acc tct cgg tga caccaac 1071
 Trp Cys Pro Arg Gln Lys Gln Gly Ala Pro Thr Ser Arg *

320 325 330

caccccgacc cagggctgcc tggctctgtc ccaggcgagg ggaaccagag cccctatgg 1131
 gctcagtggg ctccctcagg tgccacggcc gcaccagtga gatgcaggca cctggcagac 1191
 cctctggcta gcctgcagcc cccctctccc cagccctggg tgggctgcgg tgatgggtgt 1251
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 cagccccaag gttgatccca cgggaacagg ctccacccc agcacttgcg cacctgggag 1371
 ggagctgcca tccgggctcc attacctgtt gctgaaggcg ggtgctaggc tggctgggtg 1431
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 ctggcaggct ttgtggggga cggcgccctc tctgccgcag gctgggtgca cggccgggca 1551
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 tgtggctcag gactactttc tgggtcgtgc tctgccccca ctgtgcctgg gcccataaac 1731
 aacaggagcc ttttgttccg ctgacctgcc catccagca gaccacctc cccgcctggg 1791
 gccttccatg gagggaaatg ggacaggggc cgtcatctcc cctctgcctc ctgctttgct 1851
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 <213> Homo sapiens

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 <222> (545) .. (1747)

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 aggccccaca atttgttgtg taacaacata atttcaagta aagtgaatgt gattaaaaca 120
 tcttgatttc acaaagccat tcagaggagg ctctgacaaa cgcaaagcga cccaaaccct 180
 ggagggtcac atcccggctg ctacaaacct cggcggggcg gccccgctct tgcggccggg 240
 acagcgcagc ggcagcaggg gccgcagggg accgcagat tggcacgccg ctcccatcc 300
 ccgcagcgcg tctgcaccgg agactctgcg gggattgtag ccggaggggc ggccggggctc 360

cgaggcgctg ctcaggcatt ggggtttgtc ctcagagct ccacgtcggc gtgcaccatc 420
 tccctcacca gctcatcgaa agcgacccgg ggcttccagt tcagcttctg tttcgctttg 480
 gtgcagtcgc cctgcagaaa gtcctcggcg gcagcgtgcg accctctttc taacgcggcc 540
 gtgg atg ttt ctt ccc ggg ccg cag cca agc gcg gtt ctt cct ggg cgg 589
 Met Phe Leu Pro Gly Pro Gln Pro Ser Ala Val Leu Pro Gly Arg
 1 5 10 15
 tgg ctt tgg gct ttt cgt acc cac agt caa gtc agt tca cgt cgc ctc 637
 Trp Leu Trp Ala Phe Arg Thr His Ser Gln Val Ser Ser Arg Arg Leu
 20 25 30
 ccg cac aca cgc gtt cat aaa acg aaa ctg gag ttt cac gaa gca att 685
 Pro His Thr Arg Val His Lys Thr Lys Leu Glu Phe His Glu Ala Ile
 35 40 45
 ctt agg ctt agc gtc cag gaa cgc tgt aga cgg tct att cta ttc tac 733
 Leu Arg Leu Ser Val Gln Glu Arg Cys Arg Arg Ser Ile Leu Phe Tyr
 50 55 60
 ccc tat tct act cgg ttc gat tct gtt cct aag aaa atg ccg atc tcg 781
 Pro Tyr Ser Thr Arg Phe Asp Ser Val Pro Lys Lys Met Pro Ile Ser
 65 70 75
 acc cac ttg tac ttc cac gag cgg agc tgc agc cag cag ctc tgc agg 829
 Thr His Leu Tyr Phe His Glu Arg Ser Cys Ser Gln Gln Leu Cys Arg
 80 85 90 95
 acc ccg cac tgc ccg cca ccg tcc cct ctg gca gtg cct tcc tcc tcc 877
 Thr Pro His Cys Pro Pro Pro Ser Pro Leu Ala Val Pro Ser Ser Ser
 100 105 110
 cgc ttt ccc caa ctg ctc cac tcg agg aaa ccg gag gac agg ttc agc 925
 Arg Phe Pro Gln Leu Leu His Ser Arg Lys Pro Glu Asp Arg Phe Ser
 115 120 125
 tca ctg aaa ggg gtc cca aca gag gtg aag atc caa gaa atg acg aag 973
 Ser Leu Lys Gly Val Pro Thr Glu Val Lys Ile Gln Glu Met Thr Lys
 130 135 140
 ctg ggc cac gag ctg atg ctg tgt gcg cca gat gac cag gag ctc ctc 1021
 Leu Gly His Glu Leu Met Leu Cys Ala Pro Asp Asp Gln Glu Leu Leu
 145 150 155
 aag ggc tgt gcc tgc gcc cag aag cag cta cac ttc atg gac cag ttg 1069
 Lys Gly Cys Ala Cys Ala Gln Lys Gln Leu His Phe Met Asp Gln Leu
 160 165 170 175
 ctc gat acc atc cgg agc ctg acc att ggg tgc tcc agt tgc tcg agc 1117
 Leu Asp Thr Ile Arg Ser Leu Thr Ile Gly Cys Ser Ser Cys Ser Ser
 180 185 190
 ctg atg gag cac ttc gag gac acc agg gag aag aac gag gcc ttg ctg 1165
 Leu Met Glu His Phe Glu Asp Thr Arg Glu Lys Asn Glu Ala Leu Leu
 195 200 205
 ggg gag ctc ttc tct agc ccc cac ctg cag atg ctc ctg aat cca gag 1213
 Gly Glu Leu Phe Ser Ser Pro His Leu Gln Met Leu Leu Asn Pro Glu
 210 215 220
 tgc gac ccg tgg ccc ctg gac atg cag ccc ctc ctc aac aag cag agt 1261
 Cys Asp Pro Trp Pro Leu Asp Met Gln Pro Leu Leu Asn Lys Gln Ser

| 225 | 230 | 235 | |
|---|-----|-----|------|
| gat gac tgg cag tgg gcc agt gcc tct gcc aag tcc gag gag gag gag | | | 1309 |
| Asp Asp Trp Gln Trp Ala Ser Ala Ser Ala Lys Ser Glu Glu Glu Glu | | | |
| 240 | 245 | 250 | 255 |
| aag ctg gcg gag ctt gcc agg cag ctg cag gag agt gct gcc aag ttg | | | 1357 |
| Lys Leu Ala Glu Leu Ala Arg Gln Leu Gln Glu Ser Ala Ala Lys Leu | | | |
| | 260 | 265 | 270 |
| cac gcg ctt aga acg gag tac ttt gca cag cat gag caa ggg gct gct | | | 1405 |
| His Ala Leu Arg Thr Glu Tyr Phe Ala Gln His Glu Gln Gly Ala Ala | | | |
| | 275 | 280 | 285 |
| gcg ggc gca gcc gac atc agc acc cta gac cag aag ctg cgt ctg gtc | | | 1453 |
| Ala Gly Ala Ala Asp Ile Ser Thr Leu Asp Gln Lys Leu Arg Leu Val | | | |
| | 290 | 295 | 300 |
| act tcc gac ttc cac cag cta atc ttg gct ttt ctc caa gtc tac gac | | | 1501 |
| Thr Ser Asp Phe His Gln Leu Ile Leu Ala Phe Leu Gln Val Tyr Asp | | | |
| | 305 | 310 | 315 |
| gac gag ctg ggc gag tgc tgc cag cgc cca ggc cct gac ctc cac ccg | | | 1549 |
| Asp Glu Leu Gly Glu Cys Cys Gln Arg Pro Gly Pro Asp Leu His Pro | | | |
| | 320 | 325 | 330 |
| tgc ggc ccc atc atc cag gcc acg cac cag aat ctg act tcc tac agc | | | 1597 |
| Cys Gly Pro Ile Ile Gln Ala Thr His Gln Asn Leu Thr Ser Tyr Ser | | | |
| | 340 | 345 | 350 |
| caa ctg ctg caa gtg gtc atg gca gtt gct gac acc tct gcg aag gcc | | | 1645 |
| Gln Leu Leu Gln Val Val Met Ala Val Ala Asp Thr Ser Ala Lys Ala | | | |
| | 355 | 360 | 365 |
| gtg gag acc gtg aag aag cag caa ggc gag cag atc tgc tgg ggt ggc | | | 1693 |
| Val Glu Thr Val Lys Lys Gln Gln Gly Glu Gln Ile Cys Trp Gly Gly | | | |
| | 370 | 375 | 380 |
| agc agc tcc gtc atg agt cta gct acc aag atg aat gaa cta atg gag | | | 1741 |
| Ser Ser Ser Val Met Ser Leu Ala Thr Lys Met Asn Glu Leu Met Glu | | | |
| | 385 | 390 | 395 |
| aaa tag aaagtcttca gtgatggcct acgccaaagc acaggatggg gcgggcagga | | | 1797 |
| Lys * | | | |
| 400 | | | |
| agccctctcc caagatcgag ttggccgagg atggatgatt gtggcagcag aagccgttgc | | | 1857 |
| agccccacgt tgtgctctag gcagggacct ttggcccctt tggggaggga gagacagacg | | | 1917 |
| ggcggtttga cttggacaca aagaaagcct tggtttctaa gcaaaaaaaaa aaaa | | | 1971 |

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 <211> 1188
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (158)..(907)

2273

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 235 240 245

atg tta ttc tga tga ctctttgaag aaagaacttg aacctaagta atatgataca 950
 Met Leu Phe *
 250

attataacgt tagctaagaa gcatattgta agtctttaga atagtttaat tgtaacatct 1010

ttaatcataa acctgtttca ttgtaagacc tccctttctg ttaagtcaaa tctaaatagt 1070

tatgagttag ttagcaacta ttcctaaaga atatgtatta agctttcagc tcttttagtaa 1130

tgatagtga tttttctctc taacactgtc aattaaataa agacgattta attttaaa 1188

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 ccgcggggcca cccctgaag tcgcctgccg ccgcgcgcgc cgcacctagc ggacggggcgg 180
 gcggggcgcgc gtgtgcccag gagtgcgcgc ctgtcgcggt ggtgggtgca ggactggacc 240
 cacggggcca ttgtgcgccc gccgcgggca gccaggacc atg tgg gtg aac ccg 294
 Met Trp Val Asn Pro
 1 5

gag gag gtg ttg ctg gcc aac gcg ctg tgg atc acc gag agg gcc aac 342
 Glu Glu Val Leu Leu Ala Asn Ala Leu Trp Ile Thr Glu Arg Ala Asn
 10 15 20

cca tac ttc atc ctg cag cgg agg aag ggc cac gcc ggc gat gga ggc 390
 Pro Tyr Phe Ile Leu Gln Arg Arg Lys Gly His Ala Gly Asp Gly Gly
 25 30 35

ggc ggc ggc gga ctg gcg ggc ctg ctg gtg ggt acc ctt gat gtt gtg 438
 Gly Gly Gly Gly Leu Ala Gly Leu Leu Val Gly Thr Leu Asp Val Val
 40 45 50

ttg gac tcc agc gcc cgg gtc gct cct tac cga atc ttg tac cag act 486
 Leu Asp Ser Ser Ala Arg Val Ala Pro Tyr Arg Ile Leu Tyr Gln Thr
 55 60 65

cca gac tcc ctg ggt cta ctg gac cat cgc ctg tgg gtg gtt cca gga 534
 Pro Asp Ser Leu Gly Leu Leu Asp His Arg Leu Trp Val Val Pro Gly
 70 75 80 85

aag aaa tca ctg aac act ggg aat ggc ttg agc aaa atc tct tgc aga 582
 Lys Lys Ser Leu Asn Thr Gly Asn Gly Leu Ser Lys Ile Ser Cys Arg

90

95

100

cac ttt cca tct ttg aaa atg aga atg ata tca cca cat ttg tga gag 630
 His Phe Pro Ser Leu Lys Met Arg Met Ile Ser Pro His Leu *
 105 110 115

gaaaaataca gggcatcatt gcagaataca acaaaatcaa tgatgtaaag gaagatgatg 690
 acacggagaa gtttaaagaa gccattgtga aatttcatag gctgtttggg atgccagagg 750
 aagagaaact cgtcaactat tactcttgca gctattggaa ggggag 796

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 <212> DNA
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 agacttttat gaatacatgg tttcaatcaa gtccccagag aacacatttg tcttctgagc 180
 tgctggcagt ttgagaatc tgatgacctc cgagggggacc ctgcactcag ccatcaaagt 240
 gttcctgccc ctctggacac tcataattca atg gta gat gca ggt gga gtt 291
 Met Val Asp Ala Gly Gly Val
 1 5
 gag aac atc acc cag ctt ccc cag gag ctt cct cag atg atg gct gca 339
 Glu Asn Ile Thr Gln Leu Pro Gln Glu Leu Pro Gln Met Met Ala Ala
 10 15 20
 gca gcc gat ggt ttg ggg agt ata gcg ata gac acg acc cag ctc aac 387
 Ala Ala Asp Gly Leu Gly Ser Ile Ala Ile Asp Thr Thr Gln Leu Asn
 25 30 35
 atg tcc gtg aca gat ccc aca gcc tgg gct aca gcc atg aat aac ctg 435
 Met Ser Val Thr Asp Pro Thr Ala Trp Ala Thr Ala Met Asn Asn Leu
 40 45 50 55
 ggc atg gtt ccc gta ggg ttg cct gga cag cag ctc gtg tct gac tca 483
 Gly Met Val Pro Val Gly Leu Pro Gly Gln Gln Leu Val Ser Asp Ser
 60 65 70
 atc tgt gtc cca ggc ttt gat cca agc ctc aac atg atg act gga atc 531
 Ile Cys Val Pro Gly Phe Asp Pro Ser Leu Asn Met Met Thr Gly Ile
 75 80 85
 acc ccc att aac cca atg ata cca ggc ctt gga ctg gta cct ccc cca 579
 Thr Pro Ile Asn Pro Met Ile Pro Gly Leu Gly Leu Val Pro Pro Pro
 90 95 100
 cca cca aca gaa gtg gct gtt gtc aaa gaa ata atc cac tgc aaa agc 627
 Pro Pro Thr Glu Val Ala Val Val Lys Glu Ile Ile His Cys Lys Ser
 105 110 115

| | |
|---|------|
| tgt act ctt ttt cct caa aat cca aat ctt cca cct cct tcc aca aga | 675 |
| Cys Thr Leu Phe Pro Gln Asn Pro Asn Leu Pro Pro Pro Ser Thr Arg | |
| 120 125 130 135 | |
| gaa cga cct cct ggg tgt aag acc gtg ttt gtc gga gga tta cca gaa | 723 |
| Glu Arg Pro Pro Gly Cys Lys Thr Val Phe Val Gly Gly Leu Pro Glu | |
| 140 145 150 | |
| aat gct act gag gaa att att caa gaa gtc ttt gaa cag tgc ggt gat | 771 |
| Asn Ala Thr Glu Glu Ile Ile Gln Glu Val Phe Glu Gln Cys Gly Asp | |
| 155 160 165 | |
| att aca gca att cgg aaa agc aag aag aat ttt tgt cac att cgc ttt | 819 |
| Ile Thr Ala Ile Arg Lys Ser Lys Lys Asn Phe Cys His Ile Arg Phe | |
| 170 175 180 | |
| gca gag gaa ttc atg gtt gat aaa gcc att tac ctt tct ggt tat agg | 867 |
| Ala Glu Glu Phe Met Val Asp Lys Ala Ile Tyr Leu Ser Gly Tyr Arg | |
| 185 190 195 | |
| atg cga tta ggg tct agc acc gac aaa aag gat tca ggc cgc ctt cat | 915 |
| Met Arg Leu Gly Ser Ser Thr Asp Lys Lys Asp Ser Gly Arg Leu His | |
| 200 205 210 215 | |
| gtg gac ttt gcc cag gcc agg gat gac ttc tat gag tgg gaa tgc aag | 963 |
| Val Asp Phe Ala Gln Ala Arg Asp Asp Phe Tyr Glu Trp Glu Cys Lys | |
| 220 225 230 | |
| cag agg atg cgt gcc cgg gag gag cgg cac cgg cgc aag ctg gag gag | 1011 |
| Gln Arg Met Arg Ala Arg Glu Glu Arg His Arg Arg Lys Leu Glu Glu | |
| 235 240 245 | |
| gac cgg ctc agg ccc cca tcc ccg cct gcc ata atg cac tac tcg gag | 1059 |
| Asp Arg Leu Arg Pro Pro Ser Pro Pro Ala Ile Met His Tyr Ser Glu | |
| 250 255 260 | |
| cac gaa gcc gct ctg ctg gct gaa aag ctg aaa gat gat agc aag ttt | 1107 |
| His Glu Ala Ala Leu Leu Ala Glu Lys Leu Lys Asp Asp Ser Lys Phe | |
| 265 270 275 | |
| tca gag gct atc aca gtg ctg ctt tcc tgg att gaa cga ggg gaa gtg | 1155 |
| Ser Glu Ala Ile Thr Val Leu Leu Ser Trp Ile Glu Arg Gly Glu Val | |
| 280 285 290 295 | |
| aat cgg cgc tct gca aac cag ttc tat tcc atg gtg cag tcg gcc aac | 1203 |
| Asn Arg Arg Ser Ala Asn Gln Phe Tyr Ser Met Val Gln Ser Ala Asn | |
| 300 305 310 | |
| agc cac gtc cgc cgg cta atg aat gaa aaa gcc acc cat gag caa gag | 1251 |
| Ser His Val Arg Arg Leu Met Asn Glu Lys Ala Thr His Glu Gln Glu | |
| 315 320 325 | |
| atg gag gaa gcc aag gag aat ttt aaa aat gcc tta act ggg att ctc | 1299 |
| Met Glu Glu Ala Lys Glu Asn Phe Lys Asn Ala Leu Thr Gly Ile Leu | |
| 330 335 340 | |
| act caa ttt gag cag att gtg gcc gtt ttc aac gct tct acc aga caa | 1347 |
| Thr Gln Phe Glu Gln Ile Val Ala Val Phe Asn Ala Ser Thr Arg Gln | |
| 345 350 355 | |
| aaa gct tgg gac cat ttc tcg aaa gcc cag cgc aag aac ata gac att | 1395 |
| Lys Ala Trp Asp His Phe Ser Lys Ala Gln Arg Lys Asn Ile Asp Ile | |
| 360 365 370 375 | |

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| tgg cga aag cat tct gag gag ctc cgg aat gct caa agt gag cag ctc | 1443 |
| Trp Arg Lys His Ser Glu Glu Leu Arg Asn Ala Gln Ser Glu Gln Leu | |
| 380 385 390 | |
| atg ggc atc cgc cgc gaa gaa gaa atg gaa atg tct gat gat gag aac | 1491 |
| Met Gly Ile Arg Arg Glu Glu Glu Met Glu Met Ser Asp Asp Glu Asn | |
| 395 400 405 | |
| tgt gac agc cct aca aag aaa atg aga gtc gat gaa tca gcc ctg gct | 1539 |
| Cys Asp Ser Pro Thr Lys Lys Met Arg Val Asp Glu Ser Ala Leu Ala | |
| 410 415 420 | |
| gcc cag gcc tac gct ctg aaa gag gag aat gac agt ctc cgc tgg cag | 1587 |
| Ala Gln Ala Tyr Ala Leu Lys Glu Glu Asn Asp Ser Leu Arg Trp Gln | |
| 425 430 435 | |
| ctg gat gcc tac agg aat gag gtg gag ctg ctg aaa caa gaa aaa gaa | 1635 |
| Leu Asp Ala Tyr Arg Asn Glu Val Glu Leu Leu Lys Gln Glu Lys Glu | |
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| cag ctt ttc cga aca gaa gaa aac ctc acc aag gac cag caa ctg cag | 1683 |
| Gln Leu Phe Arg Thr Glu Glu Asn Leu Thr Lys Asp Gln Gln Leu Gln | |
| 460 465 470 | |
| ttt ctg cag caa acc atg caa ggc atg cag cag caa ttg cta acc atc | 1731 |
| Phe Leu Gln Gln Thr Met Gln Gly Met Gln Gln Gln Leu Leu Thr Ile | |
| 475 480 485 | |
| cag gag gag tta aac aac aaa aag tca gaa ttg gaa caa gca aag gaa | 1779 |
| Gln Glu Glu Leu Asn Asn Lys Lys Ser Glu Leu Glu Gln Ala Lys Glu | |
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| gag cag tcc cat aca caa gcg tta cta aaa gtc ctg cag gaa caa tta | 1827 |
| Glu Gln Ser His Thr Gln Ala Leu Leu Lys Val Leu Gln Glu Gln Leu | |
| 505 510 515 | |
| aaa ggt acc aag gaa ttg gtc gag acc aat ggc cac agc cat gag gat | 1875 |
| Lys Gly Thr Lys Glu Leu Val Glu Thr Asn Gly His Ser His Glu Asp | |
| 520 525 530 535 | |
| tca aat gaa atc aat gtg ttg aca gtt gca tta gtc aac caa gac cga | 1923 |
| Ser Asn Glu Ile Asn Val Leu Thr Val Ala Leu Val Asn Gln Asp Arg | |
| 540 545 550 | |
| gag aac aat att gag aaa aga agc caa ggc tta aaa tca gag aaa gaa | 1971 |
| Glu Asn Asn Ile Glu Lys Arg Ser Gln Gly Leu Lys Ser Glu Lys Glu | |
| 555 560 565 | |
| gct ctg cta ata ggt atc ata tca acg ttt ctt cac gtc cat cct ttt | 2019 |
| Ala Leu Leu Ile Gly Ile Ile Ser Thr Phe Leu His Val His Pro Phe | |
| 570 575 580 | |
| gga gcc aac ata gaa tat ctt tgg tca tac atg cag cag ctg gac tcc | 2067 |
| Gly Ala Asn Ile Glu Tyr Leu Trp Ser Tyr Met Gln Gln Leu Asp Ser | |
| 585 590 595 | |
| aag ata tct gca aat gaa ata gaa atg ctt ttg atg agg ctg cca cgc | 2115 |
| Lys Ile Ser Ala Asn Glu Ile Glu Met Leu Leu Met Arg Leu Pro Arg | |
| 600 605 610 615 | |
| atg ttc aaa cag gaa ttc acg ggt gtg gga gcc acg ctg gaa aaa aga | 2163 |
| Met Phe Lys Gln Glu Phe Thr Gly Val Gly Ala Thr Leu Glu Lys Arg | |
| 620 625 630 | |

tgg aag ttg tgt gcc ttt gaa gga att aaa acc acc taa ctgcgaagag 2212
 Trp Lys Leu Cys Ala Phe Glu Gly Ile Lys Thr Thr *
 635 640

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 Gly Val Ser His Arg Ala Gly Ser Arg Asp Cys Leu Pro Pro Ala Ala
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 tgc ttt cgg agg cgg cgg ctg gca cgg agg ccg ggc tac atg aga agc 144
 Cys Phe Arg Arg Arg Arg Leu Ala Arg Arg Pro Gly Tyr Met Arg Ser
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 tcg aca ggc cct ggg atc ggg ttc ctt tcc cca gca gtg ggc aca ctg 192
 Ser Thr Gly Pro Gly Ile Gly Phe Leu Ser Pro Ala Val Gly Thr Leu
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 ttc cgg ttc cca gga ggg gtg tct ggc gag gag tcc cac cac tcg gag 240
 Phe Arg Phe Pro Gly Gly Val Ser Gly Glu Glu Ser His His Ser Glu
 65 70 75 80
 tcc agg gcc aga cag tgt ggc ctt gac tcg aga ggc ctc ttg gtc cgg 288
 Ser Arg Ala Arg Gln Cys Gly Leu Asp Ser Arg Gly Leu Leu Val Arg
 85 90 95
 agc cct gtt tcc aag agt gca gca gcc cct act gtg acc tct gtg aga 336
 Ser Pro Val Ser Lys Ser Ala Ala Ala Pro Thr Val Thr Ser Val Arg
 100 105 110
 gga acc tcg gcg cac ttt ggg att cag ctc aga ggt ggc acc aga ttg 384
 Gly Thr Ser Ala His Phe Gly Ile Gln Leu Arg Gly Gly Thr Arg Leu
 115 120 125

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| cct gac agg ctt agc tgg ccg tgt ggc cct ggg agt gct ggg tgg cag | 432 |
| Pro Asp Arg Leu Ser Trp Pro Cys Gly Pro Gly Ser Ala Gly Trp Gln | |
| 130 135 140 | |
| caa gag ttt gca gcc atg gat agt tct gag acc ctg gac gcc agc tgg | 480 |
| Gln Glu Phe Ala Ala Met Asp Ser Ser Glu Thr Leu Asp Ala Ser Trp | |
| 145 150 155 160 | |
| gag gca gcc tgc agc gat gga gca agg cgt gtc cgg gca gca ggc tct | 528 |
| Glu Ala Ala Cys Ser Asp Gly Ala Arg Arg Val Arg Ala Ala Gly Ser | |
| 165 170 175 | |
| ctg cca tca gca gag ttg agt agc aac agc tgc agc cct ggc tgt ggc | 576 |
| Leu Pro Ser Ala Glu Leu Ser Ser Asn Ser Cys Ser Pro Gly Cys Gly | |
| 180 185 190 | |
| cct gag gtc ccc cca acc cct cct ggc tct cac agt gcc ttt acc tca | 624 |
| Pro Glu Val Pro Pro Thr Pro Pro Gly Ser His Ser Ala Phe Thr Ser | |
| 195 200 205 | |
| agc ttt agc ttt att cgg ctc tcg ctt ggc tct gcc ggg gaa cgt gga | 672 |
| Ser Phe Ser Phe Ile Arg Leu Ser Leu Gly Ser Ala Gly Glu Arg Gly | |
| 210 215 220 | |
| gaa gca gaa ggc tgc cca cca tcc aga gag gct gag tcc cat tgc cag | 720 |
| Glu Ala Glu Gly Cys Pro Pro Ser Arg Glu Ala Glu Ser His Cys Gln | |
| 225 230 235 240 | |
| agc ccc cag gag atg gga gcc aaa gct gcc agc ttg gac ggg cct cac | 768 |
| Ser Pro Gln Glu Met Gly Ala Lys Ala Ala Ser Leu Asp Gly Pro His | |
| 245 250 255 | |
| gag gac ccg cga tgt ctc tct cag ccc ttc agt ctc ttg gct aca cgg | 816 |
| Glu Asp Pro Arg Cys Leu Ser Gln Pro Phe Ser Leu Leu Ala Thr Arg | |
| 260 265 270 | |
| gtc tct gca gac ttg gcc cag gcc gca agg aac agc tcc agg cca gag | 864 |
| Val Ser Ala Asp Leu Ala Gln Ala Ala Arg Asn Ser Ser Arg Pro Glu | |
| 275 280 285 | |
| cgt gac atg cat tct tta cca gac atg gac cct ggc tcc tcc agt tct | 912 |
| Arg Asp Met His Ser Leu Pro Asp Met Asp Pro Gly Ser Ser Ser Ser | |
| 290 295 300 | |
| ctg gat ccc tca ctg gct ggc tgt ggt ggt gat ggg agc agc ggc tca | 960 |
| Leu Asp Pro Ser Leu Ala Gly Cys Gly Gly Asp Gly Ser Ser Gly Ser | |
| 305 310 315 320 | |
| ggg gat gcc cac tct tgg gac acc ctg ctc agg aaa tgg gag cca gtg | 1008 |
| Gly Asp Ala His Ser Trp Asp Thr Leu Leu Arg Lys Trp Glu Pro Val | |
| 325 330 335 | |
| ctg cgg gac tgc ctg ctg aga aac cgg agg cag atg gag gta ata tcc | 1056 |
| Leu Arg Asp Cys Leu Leu Arg Asn Arg Arg Gln Met Glu Val Ile Ser | |
| 340 345 350 | |
| tta aga tta aaa ctt cag aaa ctt cag gaa gat gca gtt gag aat gat | 1104 |
| Leu Arg Leu Lys Leu Gln Lys Leu Gln Glu Asp Ala Val Glu Asn Asp | |
| 355 360 365 | |
| gat tat gat aaa gct gag acg tta caa caa aga tta gaa gac ctg gaa | 1152 |
| Asp Tyr Asp Lys Ala Glu Thr Leu Gln Gln Arg Leu Glu Asp Leu Glu | |
| 370 375 380 | |

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| caa gag aaa atc agc ctg cac ttt caa ctt cct tca agg cag cca gct | 1200 |
| Gln Glu Lys Ile Ser Leu His Phe Gln Leu Pro Ser Arg Gln Pro Ala | |
| 385 390 395 400 | |
| ctt agc agt ttc ctg ggt cac ctg gca gca caa gtc cag gct gcc ttg | 1248 |
| Leu Ser Ser Phe Leu Gly His Leu Ala Ala Gln Val Gln Ala Ala Leu | |
| 405 410 415 | |
| cgc cgt ggg gcc act cag cag gcc agc gga gat gac acc cac acc cca | 1296 |
| Arg Arg Gly Ala Thr Gln Gln Ala Ser Gly Asp Asp Thr His Thr Pro | |
| 420 425 430 | |
| ctg aga atg gag ccg agg ctg ttg gaa ccc act gct cag gac agc ttg | 1344 |
| Leu Arg Met Glu Pro Arg Leu Leu Glu Pro Thr Ala Gln Asp Ser Leu | |
| 435 440 445 | |
| cac gtg tcc atc acg aga cga gac tgg ctt ctt cag gaa aag cag cag | 1392 |
| His Val Ser Ile Thr Arg Arg Asp Trp Leu Leu Gln Glu Lys Gln Gln | |
| 450 455 460 | |
| cta cag aaa gaa atc gaa gct ctc caa gca agg atg ttt gtg ctg gaa | 1440 |
| Leu Gln Lys Glu Ile Glu Ala Leu Gln Ala Arg Met Phe Val Leu Glu | |
| 465 470 475 480 | |
| gcc aaa gat caa cag ctg aga agg gaa ata gag gag caa gag cag caa | 1488 |
| Ala Lys Asp Gln Gln Leu Arg Arg Glu Ile Glu Glu Gln Glu Gln Gln | |
| 485 490 495 | |
| ctc cag tgg cag ggc tgc gac ctg acc cca ctg gtg ggc cag ctg tcc | 1536 |
| Leu Gln Trp Gln Gly Cys Asp Leu Thr Pro Leu Val Gly Gln Leu Ser | |
| 500 505 510 | |
| ctg ggt cag ctg cag gag gtc agc aag gcc ttg cag gac acc ctg gcc | 1584 |
| Leu Gly Gln Leu Gln Glu Val Ser Lys Ala Leu Gln Asp Thr Leu Ala | |
| 515 520 525 | |
| tca gcc ggt cag att ccc ttc cat gca gag cca ccg gaa acc ata agg | 1632 |
| Ser Ala Gly Gln Ile Pro Phe His Ala Glu Pro Pro Glu Thr Ile Arg | |
| 530 535 540 | |
| agc ctc cag gaa aga ata aaa tcc ctc aac ttg tca ctt aaa gaa atc | 1680 |
| Ser Leu Gln Glu Arg Ile Lys Ser Leu Asn Leu Ser Leu Lys Glu Ile | |
| 545 550 555 560 | |
| act act aag gtg tgt atg agt gag aaa ttc tgc agc acc ctg agg aag | 1728 |
| Thr Thr Lys Val Cys Met Ser Glu Lys Phe Cys Ser Thr Leu Arg Lys | |
| 565 570 575 | |
| aaa gtt aac gat att gaa acc caa cta cca gcc ttg ctt gaa gcc aaa | 1776 |
| Lys Val Asn Asp Ile Glu Thr Gln Leu Pro Ala Leu Leu Glu Ala Lys | |
| 580 585 590 | |
| atg cat gcc ata tca gga aac cat ttc tgg acg gct aaa gac ctc acc | 1824 |
| Met His Ala Ile Ser Gly Asn His Phe Trp Thr Ala Lys Asp Leu Thr | |
| 595 600 605 | |
| gag gag att aga tca tta aca tca gag aga gaa ggg ctg gag gga ctc | 1872 |
| Glu Glu Ile Arg Ser Leu Thr Ser Glu Arg Glu Gly Leu Glu Gly Leu | |
| 610 615 620 | |
| ctc agc aag ctg ttg gtg ttg agt tcc agg aat gtc aaa aag ctg gga | 1920 |
| Leu Ser Lys Leu Leu Val Leu Ser Ser Arg Asn Val Lys Lys Leu Gly | |
| 625 630 635 640 | |

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| agt gtt aaa gaa gat tac aac aga ctg aga aga gaa gtg gag cac cag | 1968 |
| Ser Val Lys Glu Asp Tyr Asn Arg Leu Arg Arg Glu Val Glu His Gln | |
| 645 650 655 | |
| gag act gcc tat gaa aca agt gtg aag gaa aat act atg aag tac atg | 2016 |
| Glu Thr Ala Tyr Glu Thr Ser Val Lys Glu Asn Thr Met Lys Tyr Met | |
| 660 665 670 | |
| gaa aca ctt aag aat aaa ctg tgc agc tgc aag tgt cca ctg ctt ggg | 2064 |
| Glu Thr Leu Lys Asn Lys Leu Cys Ser Cys Lys Cys Pro Leu Leu Gly | |
| 675 680 685 | |
| aaa gtg tgg gaa gct gac ttg gaa gct tgt cga ttg ctt atc cag tgc | 2112 |
| Lys Val Trp Glu Ala Asp Leu Glu Ala Cys Arg Leu Leu Ile Gln Cys | |
| 690 695 700 | |
| cta cag ctc cag gaa gcc agg gga agc ctg tct gta gaa gat gag agg | 2160 |
| Leu Gln Leu Gln Glu Ala Arg Gly Ser Leu Ser Val Glu Asp Glu Arg | |
| 705 710 715 720 | |
| cag atg gat gac tta gag gga gct gct cct cct att ccc ccc agg ctc | 2208 |
| Gln Met Asp Asp Leu Glu Gly Ala Ala Pro Pro Ile Pro Pro Arg Leu | |
| 725 730 735 | |
| cac tcc gag gat aaa agg aag acc cct ttg aag gta ttg gaa gaa tgg | 2256 |
| His Ser Glu Asp Lys Arg Lys Thr Pro Leu Lys Val Leu Glu Glu Trp | |
| 740 745 750 | |
| aag act cac ctc atc ccc tct ctg cac tgt gct gga ggt gaa cag aaa | 2304 |
| Lys Thr His Leu Ile Pro Ser Leu His Cys Ala Gly Gly Glu Gln Lys | |
| 755 760 765 | |
| gag gaa tct tac atc ctt tct gca gaa ctt gga gaa aag tgt gaa gac | 2352 |
| Glu Glu Ser Tyr Ile Leu Ser Ala Glu Leu Gly Glu Lys Cys Glu Asp | |
| 770 775 780 | |
| ata ggc aag aag cta ttg tac ttg gaa gat caa ctt cac aca gca atc | 2400 |
| Ile Gly Lys Lys Leu Leu Tyr Leu Glu Asp Gln Leu His Thr Ala Ile | |
| 785 790 795 800 | |
| cac agt cat gat gaa gat ctc att cag tct ctc agg agg gag ctc cag | 2448 |
| His Ser His Asp Glu Asp Leu Ile Gln Ser Leu Arg Arg Glu Leu Gln | |
| 805 810 815 | |
| atg gtg aag gaa act ctg cag gcc atg atc ctg cag ctc cag cca gca | 2496 |
| Met Val Lys Glu Thr Leu Gln Ala Met Ile Leu Gln Leu Gln Pro Ala | |
| 820 825 830 | |
| aag gag gcg gga gaa aga gaa gct gca gct tcc tgc atg aca gct ggt | 2544 |
| Lys Glu Ala Gly Glu Arg Glu Ala Ala Ser Cys Met Thr Ala Gly | |
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| gtc cac gaa gca caa gcc tga | 2565 |
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Met Met Glu Thr Glu Leu Lys Pro Pro Gly Pro Gln Gln Thr Ser Gly
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ggc ggc ggc ggc aac tcc acc gcg gcg gcg gcc ggc ggc aac cag aaa      150
Gly Gly Gly Gly Asn Ser Thr Ala Ala Ala Ala Gly Gly Asn Gln Lys
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aac agc ccg gac cgc gtc aag ccg ccc atg aat gcc ttc atg gtg tgg      198
Asn Ser Pro Asp Arg Val Lys Arg Pro Met Asn Ala Phe Met Val Trp
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tcc cgc ggc cag cgg cgc aag atg gcc cag gag aac ccc aag atg cac      246
Ser Arg Gly Gln Arg Arg Lys Met Ala Gln Glu Asn Pro Lys Met His
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aac tcg gag atc agc aag cgc ctg ggc gcc gag tgg aaa ctt ttg tcg      294
Asn Ser Glu Ile Ser Lys Arg Leu Gly Ala Glu Trp Lys Leu Leu Ser
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gag acg gag aag cgg ccg ttc atc gac gag gct aag cgg ctg cga gcg      342
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ctg cac atg aag gag cac ccg gat tat aaa tac cgg ccc cgg cgg aaa      390
Leu His Met Lys Glu His Pro Asp Tyr Lys Tyr Arg Pro Arg Arg Lys
      100                      105                      110                      115

acc aag acg ctc atg aag aag gat aag tac acg ctg ccc ggc ggg ctg      438
Thr Lys Thr Leu Met Lys Lys Asp Lys Tyr Thr Leu Pro Gly Gly Leu
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ctg gcc ccc ggc ggc aat agc atg gcg agc ggg gtc ggg gtg ggc gcc      486
Leu Ala Pro Gly Gly Asn Ser Met Ala Ser Gly Val Gly Val Gly Ala
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ggc ctg ggc gcg ggc gtg aac cag cgc atg gac agt tac gcg cac atg      534
Gly Leu Gly Ala Gly Val Asn Gln Arg Met Asp Ser Tyr Ala His Met
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aac ggc tgg agc aac ggc agc tac agc atg atg cag gac cag ctg ggc      582
Asn Gly Trp Ser Asn Gly Ser Tyr Ser Met Met Gln Asp Gln Leu Gly
                      165                      170                      175

tac ccg cag cac ccg ggc ctc aat gcg cac ggc gca gcg cag atg cag      630
Tyr Pro Gln His Pro Gly Leu Asn Ala His Gly Ala Ala Gln Met Gln
      180                      185                      190                      195

ccc atg cac cgc tac gac gtg agc gcc ctg cag tac aac tcc atg acc      678
Pro Met His Arg Tyr Asp Val Ser Ala Leu Gln Tyr Asn Ser Met Thr
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Ser Ser Gln Thr Tyr Met Asn Gly Ser Pro Thr Tyr Ser Met Ser Tyr

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| 230 | 235 | 240 | |
| gtc aag tcc gag gcc agc tcc agc ccc cct gtg gtt acc tct tcc tcc Val Lys Ser Glu Ala Ser Ser Ser Pro Pro Val Val Thr Ser Ser Ser | | | 822 |
| 245 | 250 | 255 | |
| cac tcc agg gcg ccc tgc cag gcc ggg gac ctc cgg gac atg atc agc His Ser Arg Ala Pro Cys Gln Ala Gly Asp Leu Arg Asp Met Ile Ser | | | 870 |
| 260 | 265 | 270 | 275 |
| atg tat ctc ccc ggc gcc gag gtg ccg gaa ccc gcc gcc ccc agc aga Met Tyr Leu Pro Gly Ala Glu Val Pro Glu Pro Ala Ala Pro Ser Arg | | | 918 |
| 280 | 285 | 290 | |
| ctt cac atg tcc cag cac tac cag agc ggc ccg gtg ccc ggc acg gcc Leu His Met Ser Gln His Tyr Gln Ser Gly Pro Val Pro Gly Thr Ala | | | 966 |
| 295 | 300 | 305 | |
| att aac ggc aca ctg ccc ctc tca cac atg tga gggccgga cagcgaactg Ile Asn Gly Thr Leu Pro Leu Ser His Met * | | | 1017 |
| 310 | 315 | | |
| gaggggggag aaattttcaa agaaaaacga gggaaatggg aggggtgcaa aagaggagag | | | 1077 |
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| gag ccg ctg ttt ccg ggc tcc ccg ccg agc cgc agc gtg tgg gac gcc Glu Pro Leu Phe Pro Gly Ser Arg Arg Ser Arg Ser Val Trp Asp Ala | | | 96 |
| 20 | 25 | 30 | |
| gtg cgc ctg gag gtg ggc gtc ccc gac agc tgc ccg gtg gtg ctg cac Val Arg Leu Glu Val Gly Val Pro Asp Ser Cys Pro Val Val Leu His | | | 144 |
| 35 | 40 | 45 | |
| agc ttc acg cag cta gac ccc gac ctg ccg cgc ccg gag agc tcc acg Ser Phe Thr Gln Leu Asp Pro Asp Leu Pro Arg Pro Glu Ser Ser Thr | | | 192 |
| 50 | 55 | 60 | |
| cag gag atc ggt gag gag ctg atc aac gga gtc atc tac tcc atc tcc Gln Glu Ile Gly Glu Glu Leu Ile Asn Gly Val Ile Tyr Ser Ile Ser | | | 240 |
| 65 | 70 | 75 | 80 |
| ctg cgc aag gtg cag ctg cac cac gga ggc aac aag ggg cag cgc tgg | | | 288 |

| | |
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| Leu Arg Lys Val Gln Leu His His Gly Gly Asn Lys Gly Gln Arg Trp | |
| 85 90 95 | |
| ctc ggg tat gag aat gag tcg gcc ctg aac ctt tat gag act tgc aag | 336 |
| Leu Gly Tyr Glu Asn Glu Ser Ala Leu Asn Leu Tyr Glu Thr Cys Lys | |
| 100 105 110 | |
| gtg cgg acc gtg aag gct ggc acg ctg gag aag ctg gtg gag cac ctg | 384 |
| Val Arg Thr Val Lys Ala Gly Thr Leu Glu Lys Leu Val Glu His Leu | |
| 115 120 125 | |
| gtg cca gcc ttc cag ggc agc gac ctc tcc tac gtc acc atc ttc ctg | 432 |
| Val Pro Ala Phe Gln Gly Ser Asp Leu Ser Tyr Val Thr Ile Phe Leu | |
| 130 135 140 | |
| tgt acc tat aga gcc ttc acc acc acc caa cag gtc ctg gac ctg ctg | 480 |
| Cys Thr Tyr Arg Ala Phe Thr Thr Thr Gln Gln Val Leu Asp Leu Leu | |
| 145 150 155 160 | |
| ttc aaa agg tac ggt aga tgt gac gcc ctc acg gcc tcc tct aga tac | 528 |
| Phe Lys Arg Tyr Gly Arg Cys Asp Ala Leu Thr Ala Ser Ser Arg Tyr | |
| 165 170 175 | |
| ggc tgc atc ctc ccc tat tcc gac gag gat ggt gga ccc cag gac caa | 576 |
| Gly Cys Ile Leu Pro Tyr Ser Asp Glu Asp Gly Gly Pro Gln Asp Gln | |
| 180 185 190 | |
| ctt aaa aat gcc atc tcc tcc atc ctg ggc acc tgg ctg gac cag tac | 624 |
| Leu Lys Asn Ala Ile Ser Ser Ile Leu Gly Thr Trp Leu Asp Gln Tyr | |
| 195 200 205 | |
| tcg gag gat ttc tgt caa cct ccg gac ttt ccc tgc ctc aag cag ctg | 672 |
| Ser Glu Asp Phe Cys Gln Pro Pro Asp Phe Pro Cys Leu Lys Gln Leu | |
| 210 215 220 | |
| gtg gcc tac gtg cag ctc aac atg cca ggc tca gac ctg gag cgc cgt | 720 |
| Val Ala Tyr Val Gln Leu Asn Met Pro Gly Ser Asp Leu Glu Arg Arg | |
| 225 230 235 240 | |
| gcc cac ctt ctc ctg gcc cag ctg gag cac tcg gaa ccc att gag gca | 768 |
| Ala His Leu Leu Leu Ala Gln Leu Glu His Ser Glu Pro Ile Glu Ala | |
| 245 250 255 | |
| gag cct gag ggt gag gag gac tgg gct ctg tca cca gtg cca gct cta | 816 |
| Glu Pro Glu Gly Glu Glu Asp Trp Ala Leu Ser Pro Val Pro Ala Leu | |
| 260 265 270 | |
| aaa cca act cca gag ctc gag cta gct cta aca cca gct cga gca ccc | 864 |
| Lys Pro Thr Pro Glu Leu Glu Leu Ala Leu Thr Pro Ala Arg Ala Pro | |
| 275 280 285 | |
| agc cca gtg ccg gct cca gcc ccg gag cca gag cca gct cca aca cca | 912 |
| Ser Pro Val Pro Ala Pro Ala Pro Glu Pro Glu Pro Ala Pro Thr Pro | |
| 290 295 300 | |
| gct cca ggt tca gag cta gaa gta gct cca gca cca gct ccg gag ctc | 960 |
| Ala Pro Gly Ser Glu Leu Glu Val Ala Pro Ala Pro Ala Pro Glu Leu | |
| 305 310 315 320 | |
| cag cag gct cca gag cca gct gtg gga cta gaa tcg gct cca gcg cca | 1008 |
| Gln Gln Ala Pro Glu Pro Ala Val Gly Leu Glu Ser Ala Pro Ala Pro | |
| 325 330 335 | |
| gct ctg gaa cta gag cca gct cca gaa cag gat cca gct ccc tca caa | 1056 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Ala | Leu | Glu | Leu | Glu | Pro | Ala | Pro | Glu | Gln | Asp | Pro | Ala | Pro | Ser | Gln | |
| | | | 340 | | | | | 345 | | | | | 350 | | | |
| act | cta | gag | ctg | gag | cca | gct | cca | gca | cca | gtt | cca | tca | tta | cag | cct | 1104 |
| Thr | Leu | Glu | Leu | Glu | Pro | Ala | Pro | Ala | Pro | Val | Pro | Ser | Leu | Gln | Pro | |
| | | | 355 | | | | | 360 | | | | | 365 | | | |
| tcc | tgg | cct | tca | cct | gtg | gtt | gca | gag | aac | ggg | ctg | agt | gag | gag | aag | 1152 |
| Ser | Trp | Pro | Ser | Pro | Val | Val | Ala | Glu | Asn | Gly | Leu | Ser | Glu | Glu | Lys | |
| | | | 370 | | | | | 375 | | | | | 380 | | | |
| cct | cac | ctc | ttg | gtg | ttc | cct | cca | gat | ctg | gtg | gca | gag | cag | ttt | aca | 1200 |
| Pro | His | Leu | Leu | Val | Phe | Pro | Pro | Asp | Leu | Val | Ala | Glu | Gln | Phe | Thr | |
| | | | 385 | | | | | 390 | | | | | 395 | | 400 | |
| ctg | atg | gat | gcg | gaa | ctg | ttc | aag | aag | gtg | gtg | ccc | tac | cac | tgc | ctg | 1248 |
| Leu | Met | Asp | Ala | Glu | Leu | Phe | Lys | Lys | Val | Val | Pro | Tyr | His | Cys | Leu | |
| | | | | 405 | | | | | 410 | | | | | 415 | | |
| ggc | tcc | atc | tgg | tcc | cag | cgg | gac | aag | aag | ggc | aag | gag | cac | ctg | gcg | 1296 |
| Gly | Ser | Ile | Trp | Ser | Gln | Arg | Asp | Lys | Lys | Gly | Lys | Glu | His | Leu | Ala | |
| | | | 420 | | | | | 425 | | | | | 430 | | | |
| ccc | acc | atc | cgc | gcc | act | gtc | acc | cag | ttc | aac | agt | gtg | gcc | aac | tgt | 1344 |
| Pro | Thr | Ile | Arg | Ala | Thr | Val | Thr | Gln | Phe | Asn | Ser | Val | Ala | Asn | Cys | |
| | | | 435 | | | | | 440 | | | | | 445 | | | |
| gtc | atc | acc | acc | tgc | ctc | ggg | aac | cga | agc | acg | aaa | gcc | cca | gac | agg | 1392 |
| Val | Ile | Thr | Thr | Cys | Leu | Gly | Asn | Arg | Ser | Thr | Lys | Ala | Pro | Asp | Arg | |
| | | | 450 | | | | | 455 | | | | | 460 | | | |
| gcc | agg | gtg | gtg | gag | cac | tgg | atc | gag | gtg | gcc | agg | gag | tgc | cgg | atc | 1440 |
| Ala | Arg | Val | Val | Glu | His | Trp | Ile | Glu | Val | Ala | Arg | Glu | Cys | Arg | Ile | |
| | | | | 465 | | | | 470 | | | | 475 | | | 480 | |
| ctc | aag | aac | ttc | tcg | tca | ctg | tat | gcc | atc | ctc | tcg | gcc | ctg | cag | agc | 1488 |
| Leu | Lys | Asn | Phe | Ser | Ser | Leu | Tyr | Ala | Ile | Leu | Ser | Ala | Leu | Gln | Ser | |
| | | | | 485 | | | | 490 | | | | | | 495 | | |
| aac | tcc | atc | cac | cgt | ctg | aag | aag | acg | tgg | gaa | gac | gtt | tcc | agg | gac | 1536 |
| Asn | Ser | Ile | His | Arg | Leu | Lys | Lys | Thr | Trp | Glu | Asp | Val | Ser | Arg | Asp | |
| | | | 500 | | | | | 505 | | | | | 510 | | | |
| agt | ttc | cgg | atc | ttt | cag | aag | ctg | tca | gag | atc | ttc | tca | gat | gag | aac | 1584 |
| Ser | Phe | Arg | Ile | Phe | Gln | Lys | Leu | Ser | Glu | Ile | Phe | Ser | Asp | Glu | Asn | |
| | | | 515 | | | | | 520 | | | | | 525 | | | |
| aac | tac | tca | ttg | agc | cgg | gag | ctg | ctc | atc | aag | gag | ggc | acc | tcc | aag | 1632 |
| Asn | Tyr | Ser | Leu | Ser | Arg | Glu | Leu | Leu | Ile | Lys | Glu | Gly | Thr | Ser | Lys | |
| | | | 530 | | | | | 535 | | | | | 540 | | | |
| ttt | gcc | acc | ctg | gag | atg | aac | ccc | aag | aga | gcc | cag | aaa | cgg | ccg | aag | 1680 |
| Phe | Ala | Thr | Leu | Glu | Met | Asn | Pro | Lys | Arg | Ala | Gln | Lys | Arg | Pro | Lys | |
| | | | 545 | | | | | 550 | | | | 555 | | | 560 | |
| gag | acg | ggc | atc | atc | cag | ggc | acc | gtt | ccc | tac | ctg | ggc | acg | ttc | ctc | 1728 |
| Glu | Thr | Gly | Ile | Ile | Gln | Gly | Thr | Val | Pro | Tyr | Leu | Gly | Thr | Phe | Leu | |
| | | | | 565 | | | | 570 | | | | | | 575 | | |
| acc | gac | ctg | gtg | atg | ctg | gac | act | gcc | atg | aag | gac | tat | ctg | tat | ggc | 1776 |
| Thr | Asp | Leu | Val | Met | Leu | Asp | Thr | Ala | Met | Lys | Asp | Tyr | Leu | Tyr | Gly | |
| | | | 580 | | | | | 585 | | | | | 590 | | | |
| aga | ctc | atc | aac | ttt | gag | aag | agg | agg | aag | gag | ttc | gag | gtg | atc | gcc | 1824 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Arg | Leu | Ile | Asn | Phe | Glu | Lys | Arg | Arg | Lys | Glu | Phe | Glu | Val | Ile | Ala | | |
| | | 595 | | | | | 600 | | | | | 605 | | | | | |
| cag | atc | aag | ctg | ctg | cag | tcg | gcc | tgc | aac | aac | tac | agc | atc | gcg | cca | 1872 | |
| Gln | Ile | Lys | Leu | Leu | Gln | Ser | Ala | Cys | Asn | Asn | Tyr | Ser | Ile | Ala | Pro | | |
| | | 610 | | | | 615 | | | | | 620 | | | | | | |
| gat | gag | caa | ttt | ggg | gcc | tgg | ttc | cgg | gcc | gtg | gag | cgg | ctc | agc | gag | 1920 | |
| Asp | Glu | Gln | Phe | Gly | Ala | Trp | Phe | Arg | Ala | Val | Glu | Arg | Leu | Ser | Glu | | |
| 625 | | | | | 630 | | | | | 635 | | | | | 640 | | |
| act | gag | agc | tac | aac | ctg | tcg | tgc | gag | ctg | gag | ccc | cca | tcc | gag | tca | 1968 | |
| Thr | Glu | Ser | Tyr | Asn | Leu | Ser | Cys | Glu | Leu | Glu | Pro | Pro | Ser | Glu | Ser | | |
| | | | | 645 | | | | | 650 | | | | | 655 | | | |
| gcc | agc | aac | acc | ctc | agg | acc | aag | aag | aac | aca | gcc | att | gtc | aag | cgc | 2016 | |
| Ala | Ser | Asn | Thr | Leu | Arg | Thr | Lys | Lys | Asn | Thr | Ala | Ile | Val | Lys | Arg | | |
| | | | 660 | | | | | 665 | | | | | 670 | | | | |
| tgg | agc | gac | cgc | cag | gcc | ccc | agc | act | gag | ctc | agt | acc | agt | ggc | agc | 2064 | |
| Trp | Ser | Asp | Arg | Gln | Ala | Pro | Ser | Thr | Glu | Leu | Ser | Thr | Ser | Gly | Ser | | |
| | | 675 | | | | | 680 | | | | | 685 | | | | | |
| tcc | cac | tcc | aag | tcc | tgt | gac | cag | ctc | agg | tgt | ggc | ccc | tac | ctc | agc | 2112 | |
| Ser | His | Ser | Lys | Ser | Cys | Asp | Gln | Leu | Arg | Cys | Gly | Pro | Tyr | Leu | Ser | | |
| | | 690 | | | | 695 | | | | | 700 | | | | | | |
| agc | ggg | gac | atc | gct | gac | gcg | ctc | agc | gtg | cac | tcg | gcc | ggc | tcc | tct | 2160 | |
| Ser | Gly | Asp | Ile | Ala | Asp | Ala | Leu | Ser | Val | His | Ser | Ala | Gly | Ser | Ser | | |
| 705 | | | | | 710 | | | | | 715 | | | | | 720 | | |
| agc | tcc | gac | gtg | gag | gag | atc | aac | atc | agc | ttc | gtc | ccg | gag | tct | cct | 2208 | |
| Ser | Ser | Asp | Val | Glu | Glu | Ile | Asn | Ile | Ser | Phe | Val | Pro | Glu | Ser | Pro | | |
| | | | | 725 | | | | | 730 | | | | | 735 | | | |
| gat | ggc | cag | gaa | aag | aag | ttc | tgg | gaa | tca | gcc | tca | cag | tca | tcc | ccg | 2256 | |
| Asp | Gly | Gln | Glu | Lys | Lys | Phe | Trp | Glu | Ser | Ala | Ser | Gln | Ser | Ser | Pro | | |
| | | | 740 | | | | | 745 | | | | | 750 | | | | |
| gag | acc | tcc | ggc | atc | agc | tca | gcc | tcc | agc | agc | acc | tcg | tcc | tcc | tca | 2304 | |
| Glu | Thr | Ser | Gly | Ile | Ser | Ser | Ala | Ser | Ser | Ser | Thr | Ser | Ser | Ser | Ser | | |
| | | 755 | | | | | 760 | | | | | 765 | | | | | |
| gcc | tcc | acc | acg | ccc | gtg | gct | gcc | aca | cgc | acc | cac | aag | cgc | tct | gtc | 2352 | |
| Ala | Ser | Thr | Thr | Pro | Val | Ala | Ala | Thr | Arg | Thr | His | Lys | Arg | Ser | Val | | |
| | | 770 | | | | 775 | | | | | 780 | | | | | | |
| tca | ggg | ctc | tgc | aac | tcc | agc | tcc | gcg | ctg | ccg | ctc | tac | aac | cag | cag | 2400 | |
| Ser | Gly | Leu | Cys | Asn | Ser | Ser | Ser | Ala | Leu | Pro | Leu | Tyr | Asn | Gln | Gln | | |
| 785 | | | | | 790 | | | | | 795 | | | | | 800 | | |
| gtg | ggc | gac | tgc | tgt | atc | atc | cgc | gtc | agc | ctg | gac | gtg | gac | aat | ggc | 2448 | |
| Val | Gly | Asp | Cys | Cys | Ile | Ile | Arg | Val | Ser | Leu | Asp | Val | Asp | Asn | Gly | | |
| | | | | 805 | | | | | 810 | | | | | 815 | | | |
| aac | atg | tac | aag | agc | atc | ctg | gtg | acc | agc | caa | gat | aag | gct | ccg | gct | 2496 | |
| Asn | Met | Tyr | Lys | Ser | Ile | Leu | Val | Thr | Ser | Gln | Asp | Lys | Ala | Pro | Ala | | |
| | | | 820 | | | | | 825 | | | | | 830 | | | | |
| gta | atc | cgc | aag | gcc | atg | gac | aaa | cac | aac | ctg | gag | gag | gag | gag | ccg | 2544 | |
| Val | Ile | Arg | Lys | Ala | Met | Asp | Lys | His | Asn | Leu | Glu | Glu | Glu | Glu | Pro | | |
| | | 835 | | | | | 840 | | | | | 845 | | | | | |
| gag | gac | tat | gag | ctg | ctg | cag | att | ctc | tca | gat | gac | cgg | aag | ctg | aag | 2592 | |

Glu Asp Tyr Glu Leu Leu Gln Ile Leu Ser Asp Asp Arg Lys Leu Lys
 850 855 860
 atc cct gaa aac gcc aac gtc ttc tat gcc atg aac tct acc gcc aac 2640
 Ile Pro Glu Asn Ala Asn Val Phe Tyr Ala Met Asn Ser Thr Ala Asn
 865 870 875 880
 tat gac ttt gtc ctc aag aag cgg acc ttc acc aag gga gtg aag gtc 2688
 Tyr Asp Phe Val Leu Lys Lys Arg Thr Phe Thr Lys Gly Val Lys Val
 885 890 895
 aag cac gga gcc agc tcc acc ctc cct cgc atg aag cag aaa gga ctc 2736
 Lys His Gly Ala Ser Ser Thr Leu Pro Arg Met Lys Gln Lys Gly Leu
 900 905 910
 aag att gcc aag ggc atc ttc tga gggcatcctc ccagggtctg gctggctggt 2790
 Lys Ile Ala Lys Gly Ile Phe *
 915 920
 agccaagcac ttatggacca gagtggccca ggccagctgg gcgccttcct cccacctgcc 2850
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 gagtct 3276

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 ggcggcagtg gagtaaccga gccggagcgt gagcggcccc ggtgccccgt tccccacgga 180
 ggcc atg ggc gac cca gcc ccc gcc cgc agc ctg gac gac atc gac-ctg 229
 Met Gly Asp Pro Ala Pro Ala Arg Ser Leu Asp Asp Ile Asp Leu
 1 5 10 15
 tcc gcc ctg cgg gac cct gct ggg atc ttt gag ctt gtg gag gtg gtc 277
 Ser Ala Leu Arg Asp Pro Ala Gly Ile Phe Glu Leu Val Glu Val Val
 20 25 30

| | |
|---|------|
| ggc aat gga acc tac gga cag gtg tac aag ggt cgg cat gtc aag acg Gly Asn Gly Thr Tyr Gly Gln Val Tyr Lys Gly Arg His Val Lys Thr 35 40 45 | 325 |
| ggg cag ctg gct gcc atc aag gtc atg gat gtc acg gag gac gag gag Gly Gln Leu Ala Ala Ile Lys Val Met Asp Val Thr Glu Asp Glu Glu 50 55 60 | 373 |
| gaa gag atc aaa cag gag atc aac atg ctg aaa aag tac tct cac cac Glu Glu Ile Lys Gln Glu Ile Asn Met Leu Lys Lys Tyr Ser His His 65 70 75 | 421 |
| cgc aac atc gcc acc tac tac gga gcc ttc atc aag aag agc ccc ccg Arg Asn Ile Ala Thr Tyr Tyr Gly Ala Phe Ile Lys Lys Ser Pro Pro 80 85 90 95 | 469 |
| gga aac gat gac cag ctc tgg ctg gtg atg gag ttc tgt ggt gct ggt Gly Asn Asp Asp Gln Leu Trp Leu Val Met Glu Phe Cys Gly Ala Gly 100 105 110 | 517 |
| tca gtg act gac ctg gta aag aac aca aaa ggc aac gcc ctg aag gag Ser Val Thr Asp Leu Val Lys Asn Thr Lys Gly Asn Ala Leu Lys Glu 115 120 125 | 565 |
| gac tgt atc gcc tat atc tgc agg gag atc ctc agg ggt ctg gcc cat Asp Cys Ile Ala Tyr Ile Cys Arg Glu Ile Leu Arg Gly Leu Ala His 130 135 140 | 613 |
| ctc cat gcc cac aag gtg atc cat cga gac atc aag ggg cag aat gtg Leu His Ala His Lys Val Ile His Arg Asp Ile Lys Gly Gln Asn Val 145 150 155 | 661 |
| ctg ctg aca gag aat gct gag gtc aag cta gtg gat ttt ggg gtg agt Leu Leu Thr Glu Asn Ala Glu Val Lys Leu Val Asp Phe Gly Val Ser 160 165 170 175 | 709 |
| gct cag ctg gac cgc acc gtg ggc aga cgg aac act ttc att ggg act Ala Gln Leu Asp Arg Thr Val Gly Arg Arg Asn Thr Phe Ile Gly Thr 180 185 190 | 757 |
| ccc tac tgg atg gct cca gag gtc atc gcc tgt gat gag aac cct gat Pro Tyr Trp Met Ala Pro Glu Val Ile Ala Cys Asp Glu Asn Pro Asp 195 200 205 | 805 |
| gcc acc tat gat tac agg agt gat att tgg tct cta gga atc aca gcc Ala Thr Tyr Asp Tyr Arg Ser Asp Ile Trp Ser Leu Gly Ile Thr Ala 210 215 220 | 853 |
| atc gag atg gca gag gga gcc ccc cct ctg tgt gac atg cac ccc atg Ile Glu Met Ala Glu Gly Ala Pro Pro Leu Cys Asp Met His Pro Met 225 230 235 | 901 |
| cga gcc ctc ttc ctc att cct cgg aac cct ccg ccc agg ctc aag tcc Arg Ala Leu Phe Leu Ile Pro Arg Asn Pro Pro Pro Arg Leu Lys Ser 240 245 250 255 | 949 |
| aag aag tgg tct aag aag ttc att gac ttc att gac aca tgt ctc atc Lys Lys Trp Ser Lys Lys Phe Ile Asp Phe Ile Asp Thr Cys Leu Ile 260 265 270 | 997 |
| aag act tac ctg agc cgc cca ccc acg gag cag cta ctg aag ttt ccc Lys Thr Tyr Leu Ser Arg Pro Pro Thr Glu Gln Leu Leu Lys Phe Pro 275 280 285 | 1045 |

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|---|------|
| ttc atc cgg gac cag ccc acg gag cgg cag gtc cgc atc cag ctt aag Phe Ile Arg Asp Gln Pro Thr Glu Arg Gln Val Arg Ile Gln Leu Lys 290 295 300 | 1093 |
| gac cac att gac cga tcc cgg aag aag cgg ggt gag aaa gag gag aca Asp His Ile Asp Arg Ser Arg Lys Lys Arg Gly Glu Lys Glu Glu Thr 305 310 315 | 1141 |
| gaa tat gag tac agc ggc agc gag gag gaa gat gac agc cat gga gag Glu Tyr Glu Tyr Ser Gly Ser Glu Glu Glu Asp Asp Ser His Gly Glu 320 325 330 335 | 1189 |
| gaa gga gag cca agc tcc atc atg aac gtg cct gga gag tcg act cta Glu Gly Glu Pro Ser Ser Ile Met Asn Val Pro Gly Glu Ser Thr Leu 340 345 350 | 1237 |
| cgc cgg gag ttt ctc cgg ctc cag cag gaa aat aag agc aac tca gag Arg Arg Glu Phe Leu Arg Leu Gln Gln Glu Asn Lys Ser Asn Ser Glu 355 360 365 | 1285 |
| gct tta aaa cag cag cag cag ctg cag cag cag cag cag cga gac ccc Ala Leu Lys Gln Gln Gln Gln Leu Gln Gln Gln Gln Gln Arg Asp Pro 370 375 380 | 1333 |
| gag gca cac atc aaa cac ctg ctg cac cag cgg cag cgg cgc ata gag Glu Ala His Ile Lys His Leu Leu His Gln Arg Gln Arg Arg Ile Glu 385 390 395 | 1381 |
| gag cag aag gag gag cgg cgc cgc gtg gag gag caa cag cgg cgg gag Glu Gln Lys Glu Glu Arg Arg Arg Val Glu Glu Gln Gln Arg Arg Glu 400 405 410 415 | 1429 |
| cgg gag cag cgg aag ctg cag gag aag gag cag cag cgg cgg ctg gag Arg Glu Gln Arg Lys Leu Gln Glu Lys Glu Gln Gln Arg Arg Leu Glu 420 425 430 | 1477 |
| gac atg cag gct ctg cgg cgg gag gag gag cgg cgg cag gcg gag cgc Asp Met Gln Ala Leu Arg Arg Glu Glu Glu Arg Arg Gln Ala Glu Arg 435 440 445 | 1525 |
| gag cag gaa tac aag cgg aag cag ctg gag gag cag cgg cag tca gaa Glu Gln Glu Tyr Lys Arg Lys Gln Leu Glu Glu Gln Arg Gln Ser Glu 450 455 460 | 1573 |
| cgt ctc cag agg cag ctg cag cag gag cat gcc tac ctc aag tcc ctg Arg Leu Gln Arg Gln Leu Gln Gln Glu His Ala Tyr Leu Lys Ser Leu 465 470 475 | 1621 |
| cag cag cag caa cag cag cag cag ctt cag aaa cag cag cag cag cag Gln Gln Gln Gln Gln Gln Gln Gln Leu Gln Lys Gln Gln Gln Gln Gln 480 485 490 495 | 1669 |
| ctc ctg cct ggg gac agg aag ccc ctg tac cat tat ggt cgg ggc atg Leu Leu Pro Gly Asp Arg Lys Pro Leu Tyr His Tyr Gly Arg Gly Met 500 505 510 | 1717 |
| aat ccc gct gac aaa cca gcc tgg gcc cga gag gta gaa gag aga aca Asn Pro Ala Asp Lys Pro Ala Trp Ala Arg Glu Val Glu Glu Arg Thr 515 520 525 | 1765 |
| agg atg aac aag cag cag aac tct ccc ttg gcc aag agc aag cca ggc Arg Met Asn Lys Gln Gln Asn Ser Pro Leu Ala Lys Ser Lys Pro Gly 530 535 540 | 1813 |

| | |
|---|------|
| agc acg ggg cct gag ccc ccc atc ccc cag gcc tcc cca ggg ccc cca Ser Thr Gly Pro Glu Pro Pro Ile Pro Gln Ala Ser Pro Gly Pro Pro 545 550 555 | 1861 |
| gga ccc ctt tcc cag act cct cct atg cag agg ccg gtg gag ccc cag Gly Pro Leu Ser Gln Thr Pro Pro Met Gln Arg Pro Val Glu Pro Gln 560 565 570 575 | 1909 |
| gag gga ccg cac aag agc ctg gtg gca cac cgg gtc cca ctg aag cca Glu Gly Pro His Lys Ser Leu Val Ala His Arg Val Pro Leu Lys Pro 580 585 590 | 1957 |
| tat gca gca cct gta ccc cga tcc cag tcc ctg cag gac cag ccc acc Tyr Ala Ala Pro Val Pro Arg Ser Gln Ser Leu Gln Asp Gln Pro Thr 595 600 605 | 2005 |
| cga aac ctg gct gcc ttc cca gcc tcc cat gac ccc gac cct gcc atc Arg Asn Leu Ala Ala Phe Pro Ala Ser His Asp Pro Asp Pro Ala Ile 610 615 620 | 2053 |
| ccc gca ccc act gcc acg ccc agt gcc cga gga gct gtc atc cgc cag Pro Ala Pro Thr Ala Thr Pro Ser Ala Arg Gly Ala Val Ile Arg Gln 625 630 635 | 2101 |
| aat tca gac ccc acc tct gaa gga cct ggc ccc agc ccg aat ccc cca Asn Ser Asp Pro Thr Ser Glu Gly Pro Gly Pro Ser Pro Asn Pro Pro 640 645 650 655 | 2149 |
| gcc tgg gtc cgc cca gat aac gag gcc cca ccc aag gtg cct cag agg Ala Trp Val Arg Pro Asp Asn Glu Ala Pro Pro Lys Val Pro Gln Arg 660 665 670 | 2197 |
| acc tca tct atc gcc act gcc ctt aac acc agt ggg gcc gga ggg tcc Thr Ser Ser Ile Ala Thr Ala Leu Asn Thr Ser Gly Ala Gly Gly Ser 675 680 685 | 2245 |
| cgg cca gcc cag gca gtc cgt gcc agt aac ccc gac ctc agg agg agc Arg Pro Ala Gln Ala Val Arg Ala Ser Asn Pro Asp Leu Arg Arg Ser 690 695 700 | 2293 |
| gac cct ggc tgg gaa cgc tcg gac agc gtc ctt cca gcc tct cac ggg Asp Pro Gly Trp Glu Arg Ser Asp Ser Val Leu Pro Ala Ser His Gly 705 710 715 | 2341 |
| cac ctc ccc cag gct ggc tca ctg gag cgg aac cgc gtg gga gtc tcc His Leu Pro Gln Ala Gly Ser Leu Glu Arg Asn Arg Val Gly Val Ser 720 725 730 735 | 2389 |
| tcc aaa ccg gac agc tcc cct gtg ctc tcc cct ggg aat aaa gcc aag Ser Lys Pro Asp Ser Ser Pro Val Leu Ser Pro Gly Asn Lys Ala Lys 740 745 750 | 2437 |
| ccc gac gac cac cgc tca cgg cca gcc cgg ccc gca agc tat aag cga Pro Asp Asp His Arg Ser Arg Pro Gly Arg Pro Ala Ser Tyr Lys Arg 755 760 765 | 2485 |
| gca att ggt gag gac ttt gtg ttg ctg aaa gag cgg act ctg gac gag Ala Ile Gly Glu Asp Phe Val Leu Leu Lys Glu Arg Thr Leu Asp Glu 770 775 780 | 2533 |
| gcc cct cgg cct ccc aag aag gcc atg gac tac tcg tcg tcc agc gag Ala Pro Arg Pro Pro Lys Lys Ala Met Asp Tyr Ser Ser Ser Ser Glu 785 790 795 | 2581 |

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|---|------|
| gag gtg gaa agc agt gag gac gac gag gag gaa ggc gaa ggc ggg cca | 2629 |
| Glu Val Glu Ser Ser Glu Asp Asp Glu Glu Glu Gly Glu Gly Gly Pro | |
| 800 805 810 815 | |
| gca gag ggg agc aga gat acc cct ggg ggc cgc agc gat ggg gat aca | 2677 |
| Ala Glu Gly Ser Arg Asp Thr Pro Gly Gly Arg Ser Asp Gly Asp Thr | |
| 820 825 830 | |
| gac agc gtc agc acc atg gtg gtc cac gac gtc gag gag atc acc ggg | 2725 |
| Asp Ser Val Ser Thr Met Val Val His Asp Val Glu Glu Ile Thr Gly | |
| 835 840 845 | |
| acc cag ccc cca tac ggg ggc ggc acc atg gtg gtc cag cgc acc cct | 2773 |
| Thr Gln Pro Pro Tyr Gly Gly Gly Thr Met Val Val Gln Arg Thr Pro | |
| 850 855 860 | |
| gaa gag gag cgg aac ctg ctg cat gct gac agc aat ggg tac aca aac | 2821 |
| Glu Glu Glu Arg Asn Leu Leu His Ala Asp Ser Asn Gly Tyr Thr Asn | |
| 865 870 875 | |
| ctg cct gac gtg gtc cag ccc agc cac tca ccc acc gag aac agc aaa | 2869 |
| Leu Pro Asp Val Val Gln Pro Ser His Ser Pro Thr Glu Asn Ser Lys | |
| 880 885 890 895 | |
| ggc caa agc cca ccc tcg aag gat ggg agt ggt gac tac cag tct cgt | 2917 |
| Gly Gln Ser Pro Pro Ser Lys Asp Gly Ser Gly Asp Tyr Gln Ser Arg | |
| 900 905 910 | |
| ggg ctg gta aag gcc cct ggc aag agc tcg ttc acg atg ttt gtg gat | 2965 |
| Gly Leu Val Lys Ala Pro Gly Lys Ser Ser Phe Thr Met Phe Val Asp | |
| 915 920 925 | |
| cta ggg atc tac cag cct gga ggc agt ggg gac agc atc ccc atc aca | 3013 |
| Leu Gly Ile Tyr Gln Pro Gly Gly Ser Gly Asp Ser Ile Pro Ile Thr | |
| 930 935 940 | |
| gcc cta gtg ggt gga gag ggc act cgg ctc gac cag ctg cag tac gac | 3061 |
| Ala Leu Val Gly Gly Glu Gly Thr Arg Leu Asp Gln Leu Gln Tyr Asp | |
| 945 950 955 | |
| gtg agg aag ggt tct gtg gtc aac gtg aat ccc acc aac acc cgg gcc | 3109 |
| Val Arg Lys Gly Ser Val Val Asn Val Asn Pro Thr Asn Thr Arg Ala | |
| 960 965 970 975 | |
| cac agt gag acc cct gag atc cgg aag tac aag aag cga ttc aac tcc | 3157 |
| His Ser Glu Thr Pro Glu Ile Arg Lys Tyr Lys Lys Arg Phe Asn Ser | |
| 980 985 990 | |
| gag atc ctc tgt gca gcc ctt tgg ggg gtc aac ctg ctg gtg ggc acg | 3205 |
| Glu Ile Leu Cys Ala Ala Leu Trp Gly Val Asn Leu Leu Val Gly Thr | |
| 995 1000 1005 | |
| gag aac ggg ctg atg ttg ctg gac cga agt ggg cag ggc aag gtg tat | 3253 |
| Glu Asn Gly Leu Met Leu Leu Asp Arg Ser Gly Gln Gly Lys Val Tyr | |
| 1010 1015 1020 | |
| gga ctc att ggg cgg cga cgc ttc cag cag atg gat gtg ctg gag ggg | 3301 |
| Gly Leu Ile Gly Arg Arg Arg Phe Gln Gln Met Asp Val Leu Glu Gly | |
| 1025 1030 1035 | |
| ctc aac ctg ctc atc acc atc tca ggg aaa agg aac aaa ctg cgg gtg | 3349 |
| Leu Asn Leu Leu Ile Thr Ile Ser Gly Lys Arg Asn Lys Leu Arg Val | |
| 1040 1045 1050 1055 | |

| | |
|---|------|
| tat tac ctg tcc tgg ctc cgg aac aag att ctg cac aat gac cca gaa | 3397 |
| Tyr Tyr Leu Ser Trp Leu Arg Asn Lys Ile Leu His Asn Asp Pro Glu | |
| 1060 1065 1070 | |
| gtg gag aag aag cag ggc tgg acc acc gtg ggg gac atg gag ggc tgc | 3445 |
| Val Glu Lys Lys Gln Gly Trp Thr Thr Val Gly Asp Met Glu Gly Cys | |
| 1075 1080 1085 | |
| ggg cac tac cgt gtt gtg aaa tac gag cgg att aag ttc ctg gtc atc | 3493 |
| Gly His Tyr Arg Val Val Lys Tyr Glu Arg Ile Lys Phe Leu Val Ile | |
| 1090 1095 1100 | |
| gcc ctc aag agc tcc gtg gag gtg tat gcc tgg gcc ccc aaa ccc tac | 3541 |
| Ala Leu Lys Ser Ser Val Glu Val Tyr Ala Trp Ala Pro Lys Pro Tyr | |
| 1105 1110 1115 | |
| cac aaa ttc atg gcc ttc aag tcc ttt gcc gac ctc ccc cac cgc cct | 3589 |
| His Lys Phe Met Ala Phe Lys Ser Phe Ala Asp Leu Pro His Arg Pro | |
| 1120 1125 1130 1135 | |
| ctg ctg gtc gac ctg aca gta gag gag ggg cag cgg ctc aag gtc atc | 3637 |
| Leu Leu Val Asp Leu Thr Val Glu Glu Gly Gln Arg Leu Lys Val Ile | |
| 1140 1145 1150 | |
| tat ggc tcc agt gct ggc ttc cat gct gtg gat gtc gac tcg ggg aac | 3685 |
| Tyr Gly Ser Ser Ala Gly Phe His Ala Val Asp Val Asp Ser Gly Asn | |
| 1155 1160 1165 | |
| agc tat gac atc tac atc cct gtg cac atc cag agc cag atc acg ccc | 3733 |
| Ser Tyr Asp Ile Tyr Ile Pro Val His Ile Gln Ser Gln Ile Thr Pro | |
| 1170 1175 1180 | |
| cat gcc atc atc ttc ctc ccc aac acc gac ggc atg gag atg ctg ctg | 3781 |
| His Ala Ile Ile Phe Leu Pro Asn Thr Asp Gly Met Glu Met Leu Leu | |
| 1185 1190 1195 | |
| tgc tac gag gac gag ggt gtc tac gtc aac acg tac ggg cgc atc att | 3829 |
| Cys Tyr Glu Asp Glu Gly Val Tyr Val Asn Thr Tyr Gly Arg Ile Ile | |
| 1200 1205 1210 1215 | |
| aag gat gtg gtg ctg cag tgg ggg gag atg cct act tct gtg gcc tac | 3877 |
| Lys Asp Val Val Leu Gln Trp Gly Glu Met Pro Thr Ser Val Ala Tyr | |
| 1220 1225 1230 | |
| atc tgc tcc aac cag ata atg ggc tgg ggt gag aaa gcc att gag atc | 3925 |
| Ile Cys Ser Asn Gln Ile Met Gly Trp Gly Glu Lys Ala Ile Glu Ile | |
| 1235 1240 1245 | |
| cgc tct gtg gag acg ggc cac ctc gac ggg gtc ttc atg cac aaa cga | 3973 |
| Arg Ser Val Glu Thr Gly His Leu Asp Gly Val Phe Met His Lys Arg | |
| 1250 1255 1260 | |
| gct cag agg ctc aag ttc ctg tgt gag cgg aat gac aag gtg ttt ttt | 4021 |
| Ala Gln Arg Leu Lys Phe Leu Cys Glu Arg Asn Asp Lys Val Phe Phe | |
| 1265 1270 1275 | |
| gcc tca gtc cgc tct ggg ggc agc agc caa gtt tac ttc atg act ctg | 4069 |
| Ala Ser Val Arg Ser Gly Gly Ser Ser Gln Val Tyr Phe Met Thr Leu | |
| 1280 1285 1290 1295 | |
| aac cgt aac tgc atc atg aac tgg tga cgggg ccctgggctg gggctgtccc | 4121 |
| Asn Arg Asn Cys Ile Met Asn Trp * | |
| 1300 | |

acactggacc cagctctccc cctgcagcca ggcttcccgg gccgcccctc ttccccctcc 4181
 ctgggctttt gcttttactg gtttgatttc actggagcct gctgggaacg tgacctctga 4241
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 Met Asn Gly Ile Arg Leu Gly
 1 5
 acc tat ggg ctg gct gag gct ggg ggc tac ctg cac aca gcc gaa ggc 161
 Thr Tyr Gly Leu Ala Glu Ala Gly Gly Tyr Leu His Thr Ala Glu Gly
 10 15 20
 acc cac agt cct gcc cgc agc gca gca gct ggg gcc atg gct ggg gtc 209
 Thr His Ser Pro Ala Arg Ser Ala Ala Ala Gly Ala Met Ala Gly Val
 25 30 35
 atg gga gcc tac ttg ggg agc ccc atc tac atg gtg aag aca cac ctg 257
 Met Gly Ala Tyr Leu Gly Ser Pro Ile Tyr Met Val Lys Thr His Leu
 40 45 50 55
 cag gca cag gca gcc tca gaa att gct gta ggg cac cag tat aag cat 305
 Gln Ala Gln Ala Ala Ser Glu Ile Ala Val Gly His Gln Tyr Lys His
 60 65 70
 cag ggc atg ttt cag gcg cta acc gag att ggc cag aaa cat ggt ctg 353
 Gln Gly Met Phe Gln Ala Leu Thr Glu Ile Gly Gln Lys His Gly Leu
 75 80 85

gtg ggg tta tgg cgt ggg gct ctg ggc ggc ctg ccc cga gtt atc gtc 401
 Val Gly Leu Trp Arg Gly Ala Leu Gly Gly Leu Pro Arg Val Ile Val
 90 95 100

ggt tcc tcc acc cag ctg tgc acc ttc tca tcc acc aag gac ctc ctg 449
 Gly Ser Ser Thr Gln Leu Cys Thr Phe Ser Ser Thr Lys Asp Leu Leu
 105 110 115

agc cag tgg gag atc ttt cct ccc cag agc tgg aag ttg gcg ctg gtg 497
 Ser Gln Trp Glu Ile Phe Pro Pro Gln Ser Trp Lys Leu Ala Leu Val
 120 125 130 135

gct gcc atg atg agt ggc att gca gtt gtc ttg gcc atg gca ccc ttt 545
 Ala Ala Met Met Ser Gly Ile Ala Val Val Leu Ala Met Ala Pro Phe
 140 145 150

gat gtg gcc tgc aca agg ctc tac aac cag ccc aca gat gca cag ggc 593
 Asp Val Ala Cys Thr Arg Leu Tyr Asn Gln Pro Thr Asp Ala Gln Gly
 155 160 165

aag ggc ctc atg tac cgg ggg ata ctt gac gct ctg ctg cag aca gct 641
 Lys Gly Leu Met Tyr Arg Gly Ile Leu Asp Ala Leu Leu Gln Thr Ala
 170 175 180

cgg acc gag ggc att ttt ggc atg tac aag ggt ata ggt gcc tcc tac 689
 Arg Thr Glu Gly Ile Phe Gly Met Tyr Lys Gly Ile Gly Ala Ser Tyr
 185 190 195

ttc cgc ctc ggc ccc cac acc atc ctc tcc ctc ttc ttc tgg gac cag 737
 Phe Arg Leu Gly Pro His Thr Ile Leu Ser Leu Phe Phe Trp Asp Gln
 200 205 210 215

ctg cgc tcc ctc tac tac aca gac act aaa taa cagccgct ttcccagttc 788
 Leu Arg Ser Leu Tyr Tyr Thr Asp Thr Lys *
 220 225

ccaccaaagt agcactcctt ggccacttgt gcctccacca ctatgtcctg gtgactactg 848

attaggtgac ctttcatcca tccatggggg acagccaacc ccactcccca tctgtttctca 908

gggttgaatc actacaagag atgagtttcc cttcttttct tgggtgttgc tttaaaccctt 968

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 cgcgccctcc gggaccctcc cccgtccctg ggccggacct gtgggcgccg ggagtccggg 180
 cagcgttcgg cgcgccgggc cgggggtggc ggccggcccc ggaccgggc agctggagaa 240
 ggagccggag cccggccggg atgagaagg gacgccgccg gggcgccac tcgctttgtg 300
 gggggaag atg ctc gcc tac tgc gtg cag gat gcc acc gtg gtg gac gtg 350
 Met Leu Ala Tyr Cys Val Gln Asp Ala Thr Val Val Asp Val
 1 5 10
 gag aag cgg agg aac ccc tcc aag cac tac gta tac ata atc aat gtg 398
 Glu Lys Arg Arg Asn Pro Ser Lys His Tyr Val Tyr Ile Ile Asn Val
 15 20 25 30
 acc tgg tct gac tcc acc tcc cag act atc tac cgg agg tac agc aag 446
 Thr Trp Ser Asp Ser Thr Ser Gln Thr Ile Tyr Arg Arg Tyr Ser Lys
 35 40 45
 ttc ttt gac ctg cag atg cag ctt ttg gat aag ttt ccc att gaa ggc 494
 Phe Phe Asp Leu Gln Met Gln Leu Leu Asp Lys Phe Pro Ile Glu Gly
 50 55 60
 ggc cag aag gac ccc aag caa agg atc atc ccc ttc ctc cca ggc aag 542
 Gly Gln Lys Asp Pro Lys Gln Arg Ile Ile Pro Phe Leu Pro Gly Lys
 65 70 75
 atc ctc ttc cgc aga agc cac atc cgg gac gta gct gtg aag aga ctg 590
 Ile Leu Phe Arg Arg Ser His Ile Arg Asp Val Ala Val Lys Arg Leu
 80 85 90
 aag ccc atc gat gaa tac tgc cgg gca ctt gtc cgg ctg ccc ccc cac 638
 Lys Pro Ile Asp Glu Tyr Cys Arg Ala Leu Val Arg Leu Pro Pro His
 95 100 105 110
 atc tca cag tgt gac gaa gtc ttc cgg ttc ttc gag gct cga ccc gag 686
 Ile Ser Gln Cys Asp Glu Val Phe Arg Phe Phe Glu Ala Arg Pro Glu
 115 120 125
 gat gtc aac cct cca aaa gag caa ggc ccc tca ccc cca gat gca gtc 734
 Asp Val Asn Pro Pro Lys Glu Gln Gly Pro Ser Pro Pro Asp Ala Val
 130 135 140
 ctc cca tat ggt gtc aac aag ggc aaa cag gag cta aag gca ggc cca 782
 Leu Pro Tyr Gly Val Asn Lys Gly Lys Gln Glu Leu Lys Ala Gly Pro
 145 150 155
 aac tgg ccc ggc agg act cac cac gtg gtc aac tgc gtg acc cag aaa 830
 Asn Trp Pro Gly Arg Thr His His Val Val Asn Cys Val Thr Gln Lys
 160 165 170
 tgc ctc ttt gtg ttc cat ttt aaa ttc tca tcc agt gga aat aag gaa 878
 Cys Leu Phe Val Phe His Phe Lys Phe Ser Ser Ser Gly Asn Lys Glu
 175 180 185 190
 tct aaa agt ctt tga 893
 Ser Lys Ser Leu *
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2296

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| Lys Pro Lys Ile Thr Pro Val Thr Val Lys Ala Gln Thr Lys Ala Pro | |
| 185 190 195 | |
| ccc aaa cca gct cga gca gca cct aaa ata gcc aat ggt aaa gca gcc | 737 |
| Pro Lys Pro Ala Arg Ala Ala Pro Lys Ile Ala Asn Gly Lys Ala Ala | |
| 200 205 210 215 | |
| agt agc agc agt agc agc agc agc agc agt agc agt gat gac tca gag | 785 |
| Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Asp Ser Glu | |
| 220 225 230 | |
| gag gag aag gca gca gcc acc ccc aag aag act gta cct aaa aag caa | 833 |
| Glu Glu Lys Ala Ala Ala Thr Pro Lys Lys Thr Val Pro Lys Lys Gln | |
| 235 240 245 | |
| gtt gtg gcc aag gcc cca gtg aaa gca gct acc acc cct acc cgg aag | 881 |
| Val Val Ala Lys Ala Pro Val Lys Ala Ala Thr Thr Pro Thr Arg Lys | |
| 250 255 260 | |
| agt tct agc agt gag gat tcc tcc agt gac gag gaa gag gag caa aaa | 929 |
| Ser Ser Ser Ser Glu Asp Ser Ser Ser Asp Glu Glu Glu Glu Gln Lys | |
| 265 270 275 | |
| aaa ccc atg aaa aat aaa cca ggt ccc tac agt tca gtc ccc ccg cct | 977 |
| Lys Pro Met Lys Asn Lys Pro Gly Pro Tyr Ser Ser Val Pro Pro Pro | |
| 280 285 290 295 | |
| tct gct ccc cca cca aag aag tct ctg gga acc cag cct ccc aag aag | 1025 |
| Ser Ala Pro Pro Pro Lys Lys Ser Leu Gly Thr Gln Pro Pro Lys Lys | |
| 300 305 310 | |
| gct gtg gag aag cag cag cct gtg gaa agc agt gaa gac agc agt gat | 1073 |
| Ala Val Glu Lys Gln Gln Pro Val Glu Ser Ser Glu Asp Ser Ser Asp | |
| 315 320 325 | |
| gag tct gat tca agt tct gaa gaa gag aag aaa ccc cca act aag gca | 1121 |
| Glu Ser Asp Ser Ser Ser Glu Glu Glu Lys Lys Pro Pro Thr Lys Ala | |
| 330 335 340 | |
| gta gtc tct aaa gca acc act aaa cca cct cca gca aag aaa gca gca | 1169 |
| Val Val Ser Lys Ala Thr Thr Lys Pro Pro Pro Ala Lys Lys Ala Ala | |
| 345 350 355 | |
| gag agc tct tca gac agc tca gac tct gac agc tct gag gat gat gaa | 1217 |
| Glu Ser Ser Ser Asp Ser Ser Asp Ser Asp Ser Ser Glu Asp Asp Glu | |
| 360 365 370 375 | |
| gct cct tct aag cca gct ggt acc acc aag aat tct tca aat aag cca | 1265 |
| Ala Pro Ser Lys Pro Ala Gly Thr Thr Lys Asn Ser Ser Asn Lys Pro | |
| 380 385 390 | |
| gct gtc acc acc aag tca cct gca gtg aag cca gct gca gcc ccc aag | 1313 |
| Ala Val Thr Thr Lys Ser Pro Ala Val Lys Pro Ala Ala Ala Pro Lys | |
| 395 400 405 | |
| caa cct gtg ggc ggt ggc cag aag ctt ctg acg aga aag gct gac agc | 1361 |
| Gln Pro Val Gly Gly Gly Gln Lys Leu Leu Thr Arg Lys Ala Asp Ser | |
| 410 415 420 | |
| agc tcc agc gag gaa gag agc agc tcc agt gag gag gag aag aca aag | 1409 |
| Ser Ser Ser Glu Glu Glu Ser Ser Ser Ser Glu Glu Glu Lys Thr Lys | |
| 425 430 435 | |

| | |
|---|------|
| aag atg gtg gcc acc act aag ccc aag gcg act gcc aaa gca gct cta | 1457 |
| Lys Met Val Ala Thr Thr Lys Pro Lys Ala Thr Ala Lys Ala Ala Leu | |
| 440 445 450 455 | |
| tct ctg cct gcc aag cag gct cct cag ggt agt agg gac agc agc tct | 1505 |
| Ser Leu Pro Ala Lys Gln Ala Pro Gln Gly Ser Arg Asp Ser Ser Ser | |
| 460 465 470 | |
| gat tca gac agc tcc agc agt gag gag gag gaa gag aag aca tct aag | 1553 |
| Asp Ser Asp Ser Ser Ser Ser Glu Glu Glu Glu Glu Lys Thr Ser Lys | |
| 475 480 485 | |
| tct gca gtt aag aag aag cca cag aag gta gca gga ggt gca gcc cct | 1601 |
| Ser Ala Val Lys Lys Lys Pro Gln Lys Val Ala Gly Gly Ala Ala Pro | |
| 490 495 500 | |
| tcc aag cca gcc tct gca aag aaa gga aag gct gag agc agc aac agt | 1649 |
| Ser Lys Pro Ala Ser Ala Lys Lys Gly Lys Ala Glu Ser Ser Asn Ser | |
| 505 510 515 | |
| tct tct tct gat gac tcc agt gag gaa gag gaa gag aag ctc aag ggc | 1697 |
| Ser Ser Ser Asp Asp Ser Ser Glu Glu Glu Glu Glu Lys Leu Lys Gly | |
| 520 525 530 535 | |
| aag ggc tct cca aga cca caa gcc ccc aag gcc aat ggc acc tct gca | 1745 |
| Lys Gly Ser Pro Arg Pro Gln Ala Pro Lys Ala Asn Gly Thr Ser Ala | |
| 540 545 550 | |
| ctg act gcc cag aat gga aaa gca gct aag aac agt gag gag gag gaa | 1793 |
| Leu Thr Ala Gln Asn Gly Lys Ala Ala Lys Asn Ser Glu Glu Glu Glu | |
| 555 560 565 | |
| gaa gaa aag aaa aag gcg gca gtg gta gtt tcc aaa tca ggt tca tta | 1841 |
| Glu Glu Lys Lys Lys Ala Ala Val Val Val Ser Lys Ser Gly Ser Leu | |
| 570 575 580 | |
| aag aag cgg aag cag aat gag gct gcc aag gag gca gag act cct cag | 1889 |
| Lys Lys Arg Lys Gln Asn Glu Ala Ala Lys Glu Ala Glu Thr Pro Gln | |
| 585 590 595 | |
| gcc aag aag ata aag ctt cag acc cct aac aca ttt cca aaa agg aag | 1937 |
| Ala Lys Lys Ile Lys Leu Gln Thr Pro Asn Thr Phe Pro Lys Arg Lys | |
| 600 605 610 615 | |
| aaa gga gaa aaa agg gca tca tcc cca ttc cga agg gtc agg gag gag | 1985 |
| Lys Gly Glu Lys Arg Ala Ser Ser Pro Phe Arg Arg Val Arg Glu Glu | |
| 620 625 630 | |
| gaa att gag gtg gat tca cga gtt gcg gac aac tcc ttt gat gcc aag | 2033 |
| Glu Ile Glu Val Asp Ser Arg Val Ala Asp Asn Ser Phe Asp Ala Lys | |
| 635 640 645 | |
| cga ggt gca gcc gga gac tgg gga gag cga gcc aat cag gtt ttg aag | 2081 |
| Arg Gly Ala Ala Gly Asp Trp Gly Glu Arg Ala Asn Gln Val Leu Lys | |
| 650 655 660 | |
| ttc acc aaa ggc aag tcc ttt cgg cat gag aaa acc aag aag aag cgg | 2129 |
| Phe Thr Lys Gly Lys Ser Phe Arg His Glu Lys Thr Lys Lys Lys Arg | |
| 665 670 675 | |
| ggc agc tac cgg gga ggc tca atc tct gtc cag gtc aat tct att aag | 2177 |
| Gly Ser Tyr Arg Gly Gly Ser Ile Ser Val Gln Val Asn Ser Ile Lys | |
| 680 685 690 695 | |

ttt gac agc gag tga cctgaggcca tcttcggtga agcaaggggtg atgatcggag 2232
 Phe Asp Ser Glu *
 700

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 gacaacacaa gcttgccaca gtcagcccga acccctgcgt ccaagacaca ccacagaact 360
 agggctcacg cggacttctc ttcttccttt taccaaggaa gcggacatag cgcctccctc 420
 gaaccttcca aggattctac cgagtccctg gtccaaccgg ggcctaaagg gggacaagaa 480
 gcagccgatg tgtcagggtt gcctctcacc agcatgctcc cctcgttgct cacagtcca 540
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 tcattggctc ctgactcacc tcattccatc atctctgagc cagcagagca atcccccaa 720
 gtgctgtag ttccccaaac agctccagcc gacccctctt taggtcagaa catagcta 780
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 ataggcatcc ctcatctagg tgtttctgga tcctcaacaa aatggcattc cgagctgtcc 900
 ccaacagagg gtccccattc agcagggtca tccacacctg ggtttttgag ccccatggca 960
 gaactgtccc atccgtctcc cctccccca gcaattggaa gtcttcttca gcttccagat 1020

ggaagccct catggtcaat gttggaagt gcttcaggtc ctgcatccac ccagcagatc 1080
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 gaaacagcga cccatgagggc tgagcctcca cttttccaga ctgcagaatc agggggccata 1200
 gaa atg acc agc aga aag cta gcc tct gcc act gca aat gac tct gct 1248
 Met Thr Ser Arg Lys Leu Ala Ser Ala Thr Ala Asn Asp Ser Ala
 1 5 10 15
 aac ccg ctg cat ttg tca gca gct cca gag aat tcc aga ggg ccc gcc 1296
 Asn Pro Leu His Leu Ser Ala Ala Pro Glu Asn Ser Arg Gly Pro Ala
 20 25 30
 ctt tcg gca gaa cac acc tct tct ttg gtg cct tct ctg cat atc acc 1344
 Leu Ser Ala Glu His Thr Ser Ser Leu Val Pro Ser Leu His Ile Thr
 35 40 45
 aca ctg ggt caa gag caa gcc atc ctt tct ggg gcg gtt ccc gca tca 1392
 Thr Leu Gly Gln Glu Gln Ala Ile Leu Ser Gly Ala Val Pro Ala Ser
 50 55 60
 cca tca act ggg aca gcc gac ttt ccc tcc ata ctt act ttc ctc cag 1440
 Pro Ser Thr Gly Thr Ala Asp Phe Pro Ser Ile Leu Thr Phe Leu Gln
 65 70 75
 ccc aca gag aat cat gcc tcc cca tct cct gtg cca gaa atg ccc act 1488
 Pro Thr Glu Asn His Ala Ser Pro Ser Pro Val Pro Glu Met Pro Thr
 80 85 90 95
 ctt cca gca gag ggc agt gat ggg tcc cct cct gca act aga gac ttg 1536
 Leu Pro Ala Glu Gly Ser Asp Gly Ser Pro Pro Ala Thr Arg Asp Leu
 100 105 110
 ctc ctc tca agc aaa gtt cct aat ctt ctt tcc aca tct tgg aca ttt 1584
 Leu Leu Ser Ser Lys Val Pro Asn Leu Leu Ser Thr Ser Trp Thr Phe
 115 120 125
 ccc cgg tgg aaa aag gac agt gtg aca gcc att tta ggg aag aat gaa 1632
 Pro Arg Trp Lys Lys Asp Ser Val Thr Ala Ile Leu Gly Lys Asn Glu
 130 135 140
 gag gca aat gtg acg att cct ctc cag gcc ttt cca agg aaa gag gtt 1680
 Glu Ala Asn Val Thr Ile Pro Leu Gln Ala Phe Pro Arg Lys Glu Val
 145 150 155
 ttg agt ctt cac act gta aat gga ttt gtc tct gat ttc agc acc ggt 1728
 Leu Ser Leu His Thr Val Asn Gly Phe Val Ser Asp Phe Ser Thr Gly
 160 165 170 175
 agt gtc tca tct ccc atc att aca gca cca agg acg aat ccc ctt cct 1776
 Ser Val Ser Ser Pro Ile Ile Thr Ala Pro Arg Thr Asn Pro Leu Pro
 180 185 190
 tca gga cca cct cta cct tcc ata ctc tcc ata caa gcc acc cag act 1824
 Ser Gly Pro Pro Leu Pro Ser Ile Leu Ser Ile Gln Ala Thr Gln Thr
 195 200 205
 gtt ttc cca tct ctc ttg gct ttt tcc agc acc aag cca gag gtt tat 1872
 Val Phe Pro Ser Leu Leu Ala Phe Ser Ser Thr Lys Pro Glu Val Tyr
 210 215 220
 gca gct gct gtg gac cat tct ggg ttg cca gct tca gct ccc aaa cag 1920

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Ala | Ala | Ala | Val | Asp | His | Ser | Gly | Leu | Pro | Ala | Ser | Ala | Pro | Lys | Gln | |
| 225 | | | | | | 230 | | | | | 235 | | | | | |
| gtg | aga | gca | tcg | ccc | tcc | tcc | atg | gat | gta | tat | gat | tcc | tta | aca | ata | 1968 |
| Val | Arg | Ala | Ser | Pro | Ser | Ser | Met | Asp | Val | Tyr | Asp | Ser | Leu | Thr | Ile | |
| 240 | | | | | 245 | | | | | 250 | | | | | 255 | |
| gga | gac | atg | aaa | aag | cca | gca | acc | aca | gat | gtt | ttc | tgg | agt | tct | ctt | 2016 |
| Gly | Asp | Met | Lys | Lys | Pro | Ala | Thr | Thr | Asp | Val | Phe | Trp | Ser | Ser | Leu | |
| | | | | 260 | | | | | 265 | | | | | 270 | | |
| tca | gca | gaa | act | gga | tct | ctt | tcc | aca | gaa | tca | ata | ata | tct | ggc | ttg | 2064 |
| Ser | Ala | Glu | Thr | Gly | Ser | Leu | Ser | Thr | Glu | Ser | Ile | Ile | Ser | Gly | Leu | |
| | | | 275 | | | | | 280 | | | | | 285 | | | |
| cag | cag | caa | aca | aat | tat | gat | tta | aat | gga | cac | aca | att | agc | acc | aca | 2112 |
| Gln | Gln | Gln | Thr | Asn | Tyr | Asp | Leu | Asn | Gly | His | Thr | Ile | Ser | Thr | Thr | |
| | | 290 | | | | | 295 | | | | | 300 | | | | |
| agt | tgg | gaa | act | cat | tta | gct | cca | aca | gct | cct | ccc | aat | ggt | tta | act | 2160 |
| Ser | Trp | Glu | Thr | His | Leu | Ala | Pro | Thr | Ala | Pro | Pro | Asn | Gly | Leu | Thr | |
| | 305 | | | | | 310 | | | | | 315 | | | | | |
| tca | gct | gcc | gat | gcc | ata | aaa | tct | cag | gat | ttc | aaa | gat | act | gct | ggg | 2208 |
| Ser | Ala | Ala | Asp | Ala | Ile | Lys | Ser | Gln | Asp | Phe | Lys | Asp | Thr | Ala | Gly | |
| 320 | | | | | 325 | | | | | 330 | | | | | 335 | |
| cat | tca | gtg | act | gca | gaa | ggg | ttt | agt | att | cag | gat | cta | gtc | ctc | ggt | 2256 |
| His | Ser | Val | Thr | Ala | Glu | Gly | Phe | Ser | Ile | Gln | Asp | Leu | Val | Leu | Gly | |
| | | | | 340 | | | | | 345 | | | | | 350 | | |
| aca | agc | att | gag | cag | cct | gtg | caa | cag | tca | gac | atg | acc | atg | gtt | gga | 2304 |
| Thr | Ser | Ile | Glu | Gln | Pro | Val | Gln | Gln | Ser | Asp | Met | Thr | Met | Val | Gly | |
| | | | 355 | | | | 360 | | | | | | 365 | | | |
| agc | cat | ata | gac | ctc | tgg | ccc | aca | agc | aat | aac | aac | cat | tcc | aga | gac | 2352 |
| Ser | His | Ile | Asp | Leu | Trp | Pro | Thr | Ser | Asn | Asn | Asn | His | Ser | Arg | Asp | |
| | | 370 | | | | | 375 | | | | | 380 | | | | |
| ttc | caa | aca | gct | gaa | gtt | gca | tat | tac | tca | ccc | aca | act | cga | cat | tcc | 2400 |
| Phe | Gln | Thr | Ala | Glu | Val | Ala | Tyr | Tyr | Ser | Pro | Thr | Thr | Arg | His | Ser | |
| | 385 | | | | | 390 | | | | | 395 | | | | | |
| gtg | tct | cat | cct | cag | cta | cag | ttg | ccc | aac | cag | cca | gca | cat | cct | ctt | 2448 |
| Val | Ser | His | Pro | Gln | Leu | Gln | Leu | Pro | Asn | Gln | Pro | Ala | His | Pro | Leu | |
| 400 | | | | | 405 | | | | | 410 | | | | | 415 | |
| ttg | cta | acc | tca | cca | gga | cca | act | tct | aca | ggt | agc | ttg | cag | gaa | atg | 2496 |
| Leu | Leu | Thr | Ser | Pro | Gly | Pro | Thr | Ser | Thr | Gly | Ser | Leu | Gln | Glu | Met | |
| | | | | 420 | | | | | 425 | | | | | 430 | | |
| ctt | tca | gat | gga | aca | gat | aca | ggt | tct | gaa | att | tcc | agt | gac | atc | aat | 2544 |
| Leu | Ser | Asp | Gly | Thr | Asp | Thr | Gly | Ser | Glu | Ile | Ser | Ser | Asp | Ile | Asn | |
| | | | 435 | | | | 440 | | | | | | 445 | | | |
| tca | tca | cct | gag | aga | aat | gct | tcc | aca | cca | ttc | cag | aac | atc | ttg | gga | 2592 |
| Ser | Ser | Pro | Glu | Arg | Asn | Ala | Ser | Thr | Pro | Phe | Gln | Asn | Ile | Leu | Gly | |
| | | 450 | | | | 455 | | | | | | 460 | | | | |
| tat | cac | tct | gct | gct | gaa | tct | tct | ata | tcg | acc | agt | gtc | ttt | ccc | agg | 2640 |
| Tyr | His | Ser | Ala | Ala | Glu | Ser | Ser | Ile | Ser | Thr | Ser | Val | Phe | Pro | Arg | |
| | 465 | | | | | 470 | | | | 475 | | | | | | |
| acc | tcc | tcc | aga | gtg | ctg | cgg | gct | tct | cag | cac | ccc | aag | aaa | tgg | aca | 2688 |

| | | | | | | | | | | | | | | | | |
|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|------|
| Thr 480 | Ser | Ser | Arg | Val | Leu 485 | Arg | Ala | Ser | Gln | His 490 | Pro | Lys | Lys | Trp | Thr 495 | |
| ggt | gca | gcc | act | aat | gca | gcg | gac | aca | gta | tca | tct | aag | gta | cag | cca | 2736 |
| Gly | Ala | Ala | Thr | Asn | Ala | Ala | Asp | Thr | Val | Ser | Ser | Lys | Val | Gln | Pro | |
| | | | | 500 | | | | | 505 | | | | | 510 | | |
| aca | gca | gca | gct | gcc | gtc | aca | ttg | ttt | ctg | agg | aaa | tca | agt | cca | cct | 2784 |
| Thr | Ala | Ala | Ala | Ala | Val | Thr | Leu | Phe | Leu | Arg | Lys | Ser | Ser | Pro | Pro | |
| | | | 515 | | | | | 520 | | | | | 525 | | | |
| gca | ctg | tct | gca | gcc | ctg | gtt | gct | aag | ggc | acc | agc | agc | agc | cct | ttg | 2832 |
| Ala | Leu | Ser | Ala | Ala | Leu | Val | Ala | Lys | Gly | Thr | Ser | Ser | Ser | Pro | Leu | |
| | | 530 | | | | | 535 | | | | | | 540 | | | |
| gcc | gtg | gcc | tca | gga | cca | gct | aag | agc | agt | tcg | atg | act | act | ctt | gct | 2880 |
| Ala | Val | Ala | Ser | Gly | Pro | Ala | Lys | Ser | Ser | Ser | Met | Thr | Thr | Leu | Ala | |
| | 545 | | | | | 550 | | | | | 555 | | | | | |
| aaa | aat | gtc | aca | aac | aag | gcc | gca | tct | ggc | cca | aag | agg | aca | cca | ggg | 2928 |
| Lys | Asn | Val | Thr | Asn | Lys | Ala | Ala | Ser | Gly | Pro | Lys | Arg | Thr | Pro | Gly | |
| 560 | | | | | 565 | | | | | 570 | | | | 575 | | |
| gca | gtc | cat | aca | gcc | ttc | cca | ttc | aca | cca | acc | tac | atg | tat | gca | aga | 2976 |
| Ala | Val | His | Thr | Ala | Phe | Pro | Phe | Thr | Pro | Thr | Tyr | Met | Tyr | Ala | Arg | |
| | | | | 580 | | | | | 585 | | | | | 590 | | |
| aca | gga | cat | acc | acg | agc | aca | cat | aca | gcc | atg | caa | gga | aac | atg | gac | 3024 |
| Thr | Gly | His | Thr | Thr | Ser | Thr | His | Thr | Ala | Met | Gln | Gly | Asn | Met | Asp | |
| | | | 595 | | | | | 600 | | | | | 605 | | | |
| act | gcc | tct | ggc | ctg | ttg | tct | aca | act | tac | ctc | ccc | agg | aaa | cca | caa | 3072 |
| Thr | Ala | Ser | Gly | Leu | Leu | Ser | Thr | Thr | Tyr | Leu | Pro | Arg | Lys | Pro | Gln | |
| | | 610 | | | | | 615 | | | | | 620 | | | | |
| gcc | atg | cac | acc | ggc | ctc | cca | aac | ccc | acc | aac | ctg | gag | atg | ccc | aga | 3120 |
| Ala | Met | His | Thr | Gly | Leu | Pro | Asn | Pro | Thr | Asn | Leu | Glu | Met | Pro | Arg | |
| | 625 | | | | | 630 | | | | | 635 | | | | | |
| gca | tcc | acg | cca | cgc | cca | ctg | aca | gtc | acg | gcc | gcg | ctg | aca | tcc | att | 3168 |
| Ala | Ser | Thr | Pro | Arg | Pro | Leu | Thr | Val | Thr | Ala | Ala | Leu | Thr | Ser | Ile | |
| 640 | | | | | 645 | | | | | 650 | | | | | 655 | |
| aca | gcc | tca | gtg | aag | gcc | acc | cgg | ttg | cca | cca | ttg | cga | gca | gaa | aac | 3216 |
| Thr | Ala | Ser | Val | Lys | Ala | Thr | Arg | Leu | Pro | Pro | Leu | Arg | Ala | Glu | Asn | |
| | | | | 660 | | | | | 665 | | | | | 670 | | |
| aca | gat | gct | gtc | ctt | cct | gct | gca | tcg | gct | gca | gtg | gtc | acg | act | ggc | 3264 |
| Thr | Asp | Ala | Val | Leu | Pro | Ala | Ala | Ser | Ala | Ala | Val | Val | Thr | Thr | Gly | |
| | | | 675 | | | | | 680 | | | | | 685 | | | |
| aaa | atg | gca | tcc | aac | ctg | gag | tgt | cag | atg | tcc | agt | aag | ctc | ctg | gtg | 3312 |
| Lys | Met | Ala | Ser | Asn | Leu | Glu | Cys | Gln | Met | Ser | Ser | Lys | Leu | Leu | Val | |
| | | 690 | | | | | 695 | | | | | 700 | | | | |
| aag | aca | gtt | ctc | ttt | ctc | acc | caa | agg | aga | gtg | cag | atc | agt | gaa | tcc | 3360 |
| Lys | Thr | Val | Leu | Phe | Leu | Thr | Gln | Arg | Arg | Val | Gln | Ile | Ser | Glu | Ser | |
| | 705 | | | | | 710 | | | | | 715 | | | | | |
| ttg | aag | ttc | agt | atc | gcc | aaa | ggg | ctc | aca | cag | gca | ttg | cgg | aag | gct | 3408 |
| Leu | Lys | Phe | Ser | Ile | Ala | Lys | Gly | Leu | Thr | Gln | Ala | Leu | Arg | Lys | Ala | |
| 720 | | | | | 725 | | | | | 730 | | | | | 735 | |
| ttc | cac | cag | aac | gat | gtc | tca | gct | cac | gtg | gac | att | ctg | gaa | tat | tct | 3456 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Phe | His | Gln | Asn | Asp | Val | Ser | Ala | His | Val | Asp | Ile | Leu | Glu | Tyr | Ser | |
| | | | | 740 | | | | | 745 | | | | | | 750 | |
| cat | aat | gtc | aca | gtt | ggg | tat | tat | gct | acc | aaa | ggg | aag | ttg | gtg | tat | 3504 |
| His | Asn | Val | Thr | Val | Gly | Tyr | Tyr | Ala | Thr | Lys | Gly | Lys | Leu | Val | Tyr | |
| | | | 755 | | | | | 760 | | | | | 765 | | | |
| ttg | cct | gct | gtg | gtg | atc | gaa | atg | ctg | ggg | gtg | tat | gga | gtc | agc | aac | 3552 |
| Leu | Pro | Ala | Val | Val | Ile | Glu | Met | Leu | Gly | Val | Tyr | Gly | Val | Ser | Asn | |
| | | | 770 | | | | | 775 | | | | | 780 | | | |
| gtc | act | gca | gac | ctg | aag | caa | cac | acc | cca | cac | tta | cag | tct | gtg | gca | 3600 |
| Val | Thr | Ala | Asp | Leu | Lys | Gln | His | Thr | Pro | His | Leu | Gln | Ser | Val | Ala | |
| | | | 785 | | | | | 790 | | | | | 795 | | | |
| gta | ctt | gcc | tcc | cca | tgg | aat | ccc | cag | cct | gca | ggc | tac | ttc | cag | cta | 3648 |
| Val | Leu | Ala | Ser | Pro | Trp | Asn | Pro | Gln | Pro | Ala | Gly | Tyr | Phe | Gln | Leu | |
| | | | | | 805 | | | | | 810 | | | | | 815 | |
| aaa | aca | gtg | ctg | cag | ttt | gtg | agc | caa | gcg | gac | aac | ata | cag | tcc | tgc | 3696 |
| Lys | Thr | Val | Leu | Gln | Phe | Val | Ser | Gln | Ala | Asp | Asn | Ile | Gln | Ser | Cys | |
| | | | | 820 | | | | | 825 | | | | | 830 | | |
| aag | ttt | gct | cag | aca | atg | gaa | cag | agg | ctg | cag | aag | gca | ttc | cag | gat | 3744 |
| Lys | Phe | Ala | Gln | Thr | Met | Glu | Gln | Arg | Leu | Gln | Lys | Ala | Phe | Gln | Asp | |
| | | | 835 | | | | | 840 | | | | | | 845 | | |
| gcc | gag | agg | aaa | gtc | ctg | aat | acc | aaa | agc | aac | ttg | aca | att | cag | att | 3792 |
| Ala | Glu | Arg | Lys | Val | Leu | Asn | Thr | Lys | Ser | Asn | Leu | Thr | Ile | Gln | Ile | |
| | | | 850 | | | | | 855 | | | | | 860 | | | |
| gtg | agc | acg | tcc | aat | gcc | tcc | cag | gca | gtc | acc | ttg | gtg | tac | gtc | gtg | 3840 |
| Val | Ser | Thr | Ser | Asn | Ala | Ser | Gln | Ala | Val | Thr | Leu | Val | Tyr | Val | Val | |
| | | | 865 | | | | 870 | | | | 875 | | | | | |
| ggc | aat | cag | agc | aca | ttc | ctc | aac | ggc | acc | gtc | gcc | agc | agc | ctc | ctc | 3888 |
| Gly | Asn | Gln | Ser | Thr | Phe | Leu | Asn | Gly | Thr | Val | Ala | Ser | Ser | Leu | Leu | |
| | | | | | 885 | | | | | 890 | | | | | 895 | |
| agc | cag | ctc | tcg | gct | gag | ctg | gtg | gga | ttc | tac | ctc | acc | tat | ccg | ccg | 3936 |
| Ser | Gln | Leu | Ser | Ala | Glu | Leu | Val | Gly | Phe | Tyr | Leu | Thr | Tyr | Pro | Pro | |
| | | | | 900 | | | | | 905 | | | | | 910 | | |
| cta | acc | att | gct | gaa | cca | ctg | gaa | tat | ccc | aac | ctt | gac | ata | tca | gaa | 3984 |
| Leu | Thr | Ile | Ala | Glu | Pro | Leu | Glu | Tyr | Pro | Asn | Leu | Asp | Ile | Ser | Glu | |
| | | | 915 | | | | | 920 | | | | | 925 | | | |
| aca | acc | aga | gac | tat | tgg | gta | att | aca | gtg | ctg | cag | ggg | gtg | gac | aat | 4032 |
| Thr | Thr | Arg | Asp | Tyr | Trp | Val | Ile | Thr | Val | Leu | Gln | Gly | Val | Asp | Asn | |
| | | | 930 | | | | | 935 | | | | | 940 | | | |
| tcg | ctg | gtg | ggc | ctg | cac | aac | cag | agc | ttt | gcc | cgg | gtc | atg | gag | cag | 4080 |
| Ser | Leu | Val | Gly | Leu | His | Asn | Gln | Ser | Phe | Ala | Arg | Val | Met | Glu | Gln | |
| | | | 945 | | | | 950 | | | | 955 | | | | | |
| cgc | ctg | gcc | cag | cta | ttc | atg | atg | tcc | cag | caa | caa | ggc | cgg | cgg | ttt | 4128 |
| Arg | Leu | Ala | Gln | Leu | Phe | Met | Met | Ser | Gln | Gln | Gln | Gly | Arg | Arg | Phe | |
| | | | | | 965 | | | | | 970 | | | | | 975 | |
| aaa | cgg | gcc | acc | acc | ctg | gga | agc | tac | act | gtg | cag | atg | gtg | aag | atg | 4176 |
| Lys | Arg | Ala | Thr | Thr | Leu | Gly | Ser | Tyr | Thr | Val | Gln | Met | Val | Lys | Met | |
| | | | | 980 | | | | | 985 | | | | | 990 | | |
| cag | cgt | gtc | cca | ggc | ccg | aag | gac | cca | gcg | gag | ctg | act | tac | tat | acc | 4224 |

| | | | | | | | | | | | | | | | | | |
|------|-----|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|--|
| Gln | Arg | Val | Pro | Gly | Pro | Lys | Asp | Pro | Ala | Glu | Leu | Thr | Tyr | Tyr | Thr | | |
| | | | 995 | | | | | 1000 | | | | | 1005 | | | | |
| ctg | tac | aac | ggg | aag | cct | ttg | ttg | ggg | acc | gta | gct | gcc | aag | atc | ctg | 4272 | |
| Leu | Tyr | Asn | Gly | Lys | Pro | Leu | Leu | Gly | Thr | Val | Ala | Ala | Lys | Ile | Leu | | |
| | | 1010 | | | | | 1015 | | | | | 1020 | | | | | |
| agc | acc | att | gat | tcc | caa | agg | atg | gcc | ttg | acc | ctt | cat | cac | gtt | gtc | 4320 | |
| Ser | Thr | Ile | Asp | Ser | Gln | Arg | Met | Ala | Leu | Thr | Leu | His | His | Val | Val | | |
| | | 1025 | | | | 1030 | | | | | 1035 | | | | | | |
| ctt | ctg | caa | gct | gac | ccc | gtg | gtg | aag | aac | ccg | ccc | aat | aac | ctg | tgg | 4368 | |
| Leu | Leu | Gln | Ala | Asp | Pro | Val | Val | Lys | Asn | Pro | Pro | Asn | Asn | Leu | Trp | | |
| 1040 | | | | | 1045 | | | | 1050 | | | | | 1055 | | | |
| atc | atc | gct | gca | gtg | ctg | gcg | ccc | att | gcc | gtg | gtc | acg | gtc | atc | atc | 4416 | |
| Ile | Ile | Ala | Ala | Val | Leu | Ala | Pro | Ile | Ala | Val | Val | Thr | Val | Ile | Ile | | |
| | | | | 1060 | | | | | 1065 | | | | | 1070 | | | |
| atc | atc | atc | act | gcc | gtg | ctc | tgc | agg | aag | aac | aag | aac | gac | ttc | aag | 4464 | |
| Ile | Ile | Ile | Thr | Ala | Val | Leu | Cys | Arg | Lys | Asn | Lys | Asn | Asp | Phe | Lys | | |
| | | | 1075 | | | | | 1080 | | | | | 1085 | | | | |
| cct | gac | acc | atg | ata | aac | ctg | ccg | cag | aga | gca | aag | cct | gtg | caa | ggc | 4512 | |
| Pro | Asp | Thr | Met | Ile | Asn | Leu | Pro | Gln | Arg | Ala | Lys | Pro | Val | Gln | Gly | | |
| | | 1090 | | | | 1095 | | | | | | 1100 | | | | | |
| ttt | gat | tat | gcc | aag | caa | cac | ctg | ggc | cag | caa | ggg | gca | gat | gag | gag | 4560 | |
| Phe | Asp | Tyr | Ala | Lys | Gln | His | Leu | Gly | Gln | Gln | Gly | Ala | Asp | Glu | Glu | | |
| | | 1105 | | | | 1110 | | | | | 1115 | | | | | | |
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| Val | Ile | Pro | Val | Thr | Gln | Glu | Thr | Val | Val | Leu | Pro | Leu | Pro | Ile | Arg | | |
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| gat | gct | cct | cag | gaa | aga | gac | gtc | gct | cag | gat | gga | agc | acc | atc | aag | 4656 | |
| Asp | Ala | Pro | Gln | Glu | Arg | Asp | Val | Ala | Gln | Asp | Gly | Ser | Thr | Ile | Lys | | |
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| acc | gcc | aaa | tcc | act | gaa | acc | agg | aag | agc | agg | tcg | ccc | agt | gag | aat | 4704 | |
| Thr | Ala | Lys | Ser | Thr | Glu | Thr | Arg | Lys | Ser | Arg | Ser | Pro | Ser | Glu | Asn | | |
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| ggc | tct | gtc | atc | agc | aac | gaa | tca | ggg | aag | ccc | agc | tca | ggg | aga | cgc | 4752 | |
| Gly | Ser | Val | Ile | Ser | Asn | Glu | Ser | Gly | Lys | Pro | Ser | Ser | Gly | Arg | Arg | | |
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| tca | ccc | cag | aat | gta | atg | gca | cag | cag | aaa | gtg | aca | aag | gag | gag | gca | 4800 | |
| Ser | Pro | Gln | Asn | Val | Met | Ala | Gln | Gln | Lys | Val | Thr | Lys | Glu | Glu | Ala | | |
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| agg | aag | aga | aat | gtg | cca | gcg | agt | gac | gaa | gag | gag | gga | gcg | gtt | cta | 4848 | |
| Arg | Lys | Arg | Asn | Val | Pro | Ala | Ser | Asp | Glu | Glu | Glu | Gly | Ala | Val | Leu | | |
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| Phe | Asp | Asn | Ser | Ser | Lys | Val | Ala | Ala | Glu | Pro | Phe | Asp | Thr | Ser | Ser | | |
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| Gly | Ser | Val | Gln | Leu | Ile | Ala | Ile | Lys | Pro | Thr | Ala | Leu | Pro | Met | Val | | |
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| ccc | ccc | acc | tcg | gac | agg | agc | cag | gag | tca | tcg | gca | gtc | ctc | aac | ggc | 4992 | |

| | | | | | | | | | | | | | | | | | |
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| Pro | Pro | Thr | Ser | Asp | Arg | Ser | Gln | Glu | Ser | Ser | Ala | Val | Leu | Asn | Gly | | |
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| Glu Val Asn Lys Ala Leu Lys Gln Lys Ser Asp Ile Glu His Tyr Arg | | | | | | | | | | | | | | | | | |
| | 1265 | | | | | | 1270 | | | | | 1275 | | | | | |
| aac aag ctg cgc ctc aaa gcc aag agg aag gga tat tac gac ttc cct 5088 | | | | | | | | | | | | | | | | | |
| Asn Lys Leu Arg Leu Lys Ala Lys Arg Lys Gly Tyr Tyr Asp Phe Pro | | | | | | | | | | | | | | | | | |
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| gca gtg gag acg agc aag ggt ctg acc gaa aga aag aag atg tat gaa 5136 | | | | | | | | | | | | | | | | | |
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| tgt gct cca ttc acc gag tct aaa aac agg caa cag atg aag aac tct 5232 | | | | | | | | | | | | | | | | | |
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| Val Tyr Arg Ser Arg Gln Ser Leu Asn Ser Pro Ser Pro Gly Glu Thr | | | | | | | | | | | | | | | | | |
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| Glu Met Asp Leu Leu Val Thr Arg Glu Arg Pro Arg Arg Gly Ile Arg | | | | | | | | | | | | | | | | | |
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| Asn Ser Gly Tyr Asp Thr Glu Pro Glu Ile Ile Glu Glu Thr Asn Ile | | | | | | | | | | | | | | | | | |
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| Asp Arg Val Pro Glu Pro Arg Gly Tyr Ser Arg Ser Arg Gln Val Lys | | | | | | | | | | | | | | | | | |
| | | | | | | | 1395 | | | | | 1400 | | | | 1405 | |
| ggc cac tcg gag acc tcc aca ctg agc tcc cag cca tcc atc gac gag 5472 | | | | | | | | | | | | | | | | | |
| Gly His Ser Glu Thr Ser Thr Leu Ser Ser Gln Pro Ser Ile Asp Glu | | | | | | | | | | | | | | | | | |
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| gtc agg cag cag atg cac atg ctg ctg gag gag gcc ttc agc ctg gca 5520 | | | | | | | | | | | | | | | | | |
| Val Arg Gln Gln Met His Met Leu Leu Glu Glu Ala Phe Ser Leu Ala | | | | | | | | | | | | | | | | | |
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| Ala Gln His Leu Pro Tyr Ser Glu Val Val Thr Ser Ala Pro Gly Thr | | | | | | | | | | | | | | | | | |
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| Met Thr Arg Pro Arg Ala Gly Val Gln Trp Val Pro Thr Tyr Arg Pro | | | | | | | | | | | | | | | | | |
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| Glu Met Tyr Gln Tyr Ser Leu Pro Arg Pro Ala Tyr Arg Phe Ser Gln | | | | | | | | | | | | | | | | | |
| | | | | | | | 1490 | | | | | 1495 | | | | 1500 | |
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| | |
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| Leu Pro Glu Met Val Met Gly Ser Pro Pro Pro Pro Val Pro Pro Arg | |
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| Thr Gly Pro Val Ala Val Ala Ser Leu Arg Arg Ser Thr Ser Asp Ile | |
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| ggc agc aag acc aga atg gcc gag tct aca ggg ccc gag ccg gcc cag | 5856 |
| Gly Ser Lys Thr Arg Met Ala Glu Ser Thr Gly Pro Glu Pro Ala Gln | |
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| Leu His Asp Ser Ala Ser Phe Thr Gln Met Ser Arg Gly Pro Val Ser | |
| 1555 1560 1565 | |
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| Val Thr Gln Leu Asp Gln Ser Ala Leu Asn Tyr Ser Gly Asn Thr Val | |
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| Pro Ala Val Phe Ala Ile Pro Ala Ala Asn Arg Pro Gly Phe Thr Gly | |
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| tac ttc atc cca acg cct ccc tca tcc tat agg aac cag gcc tgg atg | 6048 |
| Tyr Phe Ile Pro Thr Pro Pro Ser Ser Tyr Arg Asn Gln Ala Trp Met | |
| 1600 1605 1610 1615 | |
| tcc tat gca gga gag aat gag ctc ccg agc cag tgg gca gat tcg gtg | 6096 |
| Ser Tyr Ala Gly Glu Asn Glu Leu Pro Ser Gln Trp Ala Asp Ser Val | |
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| ccc ctc cca ggg tac atc gag gcc tac ccc cga tca cgg tac ccc cag | 6144 |
| Pro Leu Pro Gly Tyr Ile Glu Ala Tyr Pro Arg Ser Arg Tyr Pro Gln | |
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| Ser Ser Pro Ser Arg Leu Pro Arg Gln Tyr Ser Gln Pro Ala Asn Leu | |
| 1650 1655 1660 | |
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| 1665 1670 1675 | |
| cag agc ctg gca gaa aac gac ccg tct gac gct ccc ctg acc aac atc | 6288 |
| Gln Ser Leu Ala Glu Asn Asp Pro Ser Asp Ala Pro Leu Thr Asn Ile | |
| 1680 1685 1690 1695 | |
| tcc act gcg gcc ctt gtg aag gcc atc cgg gag gag gtg gcc aag ctg | 6336 |
| Ser Thr Ala Ala Leu Val Lys Ala Ile Arg Glu Glu Val Ala Lys Leu | |
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| gcc aaa aaa cag aca gac atg ttt gag ttc cag gtc taa cgccttagcc | 6385 |
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| tac aca gac gcc gag atg aag tct gat aat gtg aag gat aaa gat gca | 101 | |
| Tyr Thr Asp Ala Glu Met Lys Ser Asp Asn Val Lys Asp Lys Asp Ala | | |
| 10 15 20 | | |
| aaa att agc ttc cta caa aag gcc ata gac gtg gtt gta atg gtg tcg | 149 | |
| Lys Ile Ser Phe Leu Gln Lys Ala Ile Asp Val Val Val Met Val Ser | | |
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| gga gag cca ctg ttg gcc aaa cca gcc cga atc gtg gcg ggg cat gag | 197 | |
| Gly Glu Pro Leu Leu Ala Lys Pro Ala Arg Ile Val Ala Gly His Glu | | |
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| cct gaa aga aca aac gag ctg ctc cag ata att gga aaa tgc tgt ctc | 245 | |
| Pro Glu Arg Thr Asn Glu Leu Leu Gln Ile Ile Gly Lys Cys Cys Leu | | |
| 60 65 70 | | |
| aac aag ctc tct agt gac gat gcg gtg cgg agg gtt tta gct gga gag | 293 | |
| Asn Lys Leu Ser Ser Asp Asp Ala Val Arg Arg Val Leu Ala Gly Glu | | |
| 75 80 85 | | |
| aag gga gaa gtg aaa ggc cgg gcc tca ctg acc tca aga tct cag gaa | 341 | |
| Lys Gly Glu Val Lys Gly Arg Ala Ser Leu Thr Ser Arg Ser Gln Glu | | |
| 90 95 100 | | |
| ttg gat aat aag aat gtg cga gaa gaa gag tcc aga gtt cac aaa aat | 389 | |
| Leu Asp Asn Lys Asn Val Arg Glu Glu Glu Ser Arg Val His Lys Asn | | |
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| aca gag gat aga gga gac gct gaa ata aaa gag aga agt aca agc aga | 437 | |
| Thr Glu Asp Arg Gly Asp Ala Glu Ile Lys Glu Arg Ser Thr Ser Arg | | |
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| Asp Arg Lys Gln Lys Glu Glu Leu Lys Glu Asp Arg Lys Pro Arg Glu | | |
| 140 145 150 | | |
| aag gac aag gac aag gag aag gcc aag gag aat ggc gga aac aga cac | 533 | |
| Lys Asp Lys Asp Lys Glu Lys Ala Lys Glu Asn Gly Gly Asn Arg His | | |
| 155 160 165 | | |
| aga gaa ggg gag aga gag aga gcc aaa gcc cgg gcc agg cca gac aac | 581 | |
| Arg Glu Gly Glu Arg Glu Arg Ala Lys Ala Arg Ala Arg Pro Asp Asn | | |
| 170 175 180 | | |
| gag cga cag aaa gac aga ggc aac agg gag cgg gac aga gac tcc gag | 629 | |
| Glu Arg Gln Lys Asp Arg Gly Asn Arg Glu Arg Asp Arg Asp Ser Glu | | |
| 185 190 195 200 | | |
| cgc aag aag gag aca gag aga aag agt gag ggg ggg aaa gag aag gag | 677 | |
| Arg Lys Lys Glu Thr Glu Arg Lys Ser Glu Gly Gly Lys Glu Lys Glu | | |
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| Arg Leu Arg Asp Arg Asp Arg Glu Arg Asp Arg Asp Lys Gly Lys Asp | | |
| 220 225 230 | | |
| agg gac aga cgg aga gtg aaa aac ggg gag cac tcc tgg gac ctg gac | 773 | |
| Arg Asp Arg Arg Arg Val Lys Asn Gly Glu His Ser Trp Asp Leu Asp | | |
| 235 240 245 | | |

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| agg gag aat aac aga gag cat gac aaa cct gag aaa aag tca gca agc | 821 |
| Arg Glu Asn Asn Arg Glu His Asp Lys Pro Glu Lys Lys Ser Ala Ser | |
| 250 255 260 | |
| tca ggg gag atg tct aaa aag tta tca gat gga act ttt aaa gac tcc | 869 |
| Ser Gly Glu Met Ser Lys Lys Leu Ser Asp Gly Thr Phe Lys Asp Ser | |
| 265 270 275 280 | |
| aag gct gaa aca gag act gag att tcc act aga gct tcc aag tca ttg | 917 |
| Lys Ala Glu Thr Glu Thr Glu Ile Ser Thr Arg Ala Ser Lys Ser Leu | |
| 285 290 295 | |
| aca aca aaa aca tca aaa cgg cga tcc aaa aat tca gtg gaa ggt gac | 965 |
| Thr Thr Lys Thr Ser Lys Arg Arg Ser Lys Asn Ser Val Glu Gly Asp | |
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| Ser Thr Ser Asp Ala Glu Gly Asp Ala Gly Pro Ala Gly Gln Asp Lys | |
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| tct gag gtg cca gag act cca gaa att cct aat gag ctt tca tcc aac | 1061 |
| Ser Glu Val Pro Glu Thr Pro Glu Ile Pro Asn Glu Leu Ser Ser Asn | |
| 330 335 340 | |
| atc aga aga att cct cgg cct ggg agt gca aga cca gcc cct ccc cgg | 1109 |
| Ile Arg Arg Ile Pro Arg Pro Gly Ser Ala Arg Pro Ala Pro Pro Arg | |
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| gtc aaa cgg caa gac agc atg gag gcg cta caa atg gat agg tca ggg | 1157 |
| Val Lys Arg Gln Asp Ser Met Glu Ala Leu Gln Met Asp Arg Ser Gly | |
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| agt ggt aaa acc gtt tca aat gtg att aca gag tca cac aat tct gac | 1205 |
| Ser Gly Lys Thr Val Ser Asn Val Ile Thr Glu Ser His Asn Ser Asp | |
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| aat gaa gag gat gat caa ttt gtg gtg gaa gct gcc cct cag ctc tct | 1253 |
| Asn Glu Glu Asp Asp Gln Phe Val Val Glu Ala Ala Pro Gln Leu Ser | |
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| Glu Met Ser Glu Ile Glu Met Val Thr Ala Val Glu Leu Glu Glu Glu | |
| 410 415 420 | |
| gag aag cat ggt gga ctt gtg aaa aaa att ttg gag acg aag aaa gat | 1349 |
| Glu Lys His Gly Gly Leu Val Lys Lys Ile Leu Glu Thr Lys Lys Asp | |
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| tat gag aaa ttg cag cag tca ccc aaa cct ggg gag aag gag cga tct | 1397 |
| Tyr Glu Lys Leu Gln Gln Ser Pro Lys Pro Gly Glu Lys Glu Arg Ser | |
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| ctc ttt gag tcg gca tgg aag aag gag aag gac atc gtt tcc aag gag | 1445 |
| Leu Phe Glu Ser Ala Trp Lys Lys Glu Lys Asp Ile Val Ser Lys Glu | |
| 460 465 470 | |
| ata gag aag ctc cgc acg tcc atc cag acc ctg tgc aag agc gca ctt | 1493 |
| Ile Glu Lys Leu Arg Thr Ser Ile Gln Thr Leu Cys Lys Ser Ala Leu | |
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| ccc ctg ggg aag atc atg gac tac atc cag gaa gac gtg gat gcc atg | 1541 |
| Pro Leu Gly Lys Ile Met Asp Tyr Ile Gln Glu Asp Val Asp Ala Met | |
| 490 495 500 | |

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Gln Asn Glu Leu Gln Met Trp His Ser Glu Asn Arg Gln His Ala Glu
505                      510                      515                      520

gcc ctg cag cag gag cag agg atc aca gac tgt gcc gtg gag ccc tta      1637
Ala Leu Gln Gln Glu Gln Arg Ile Thr Asp Cys Ala Val Glu Pro Leu
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aag gct gag ctc gcg gag ctg gag cag ctg atc aaa gac cag caa gac      1685
Lys Ala Glu Leu Ala Glu Leu Glu Gln Leu Ile Lys Asp Gln Gln Asp
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Lys Ile Cys Ala Val Lys Ala Asn Ile Leu Lys Asn Glu Glu Lys Ile
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Gln Lys Met Val Tyr Ser Ile Asn Leu Thr Ser Arg Arg *
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Thr Ala Ala Gly Glu Thr Phe Ser Gly Gly Cys Leu Phe Asp Glu Pro
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                    35                      40                      45

gag caa gtg aac acc ttg act aaa ccg act tct gat cca tgg atg cca      192
Glu Gln Val Asn Thr Leu Thr Lys Pro Thr Ser Asp Pro Trp Met Pro
                    50                      55                      60

tca ggt tct ttc atg ctg gtg aat gcc tct ggg aga cct gag ggg cag      240
Ser Gly Ser Phe Met Leu Val Asn Ala Ser Gly Arg Pro Glu Gly Gln
  65                      70                      75                      80

aga gcc cac ctg ctc tta ccc caa ctt aaa gaa aat gac acc cac tgc      288

```

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Arg | Ala | His | Leu | Leu | Leu | Pro | Gln | Leu | Lys | Glu | Asn | Asp | Thr | His | Cys | |
| | | | 85 | | | | | | 90 | | | | | 95 | | |
| atc | gat | ttt | cac | tat | ttt | gtg | tcc | agc | aag | agt | aat | tct | cct | ccg | ggg | 336 |
| Ile | Asp | Phe | His | Tyr | Phe | Val | Ser | Ser | Lys | Ser | Asn | Ser | Pro | Pro | Gly | |
| | | | 100 | | | | | 105 | | | | | 110 | | | |
| tta | ctc | aat | gtc | tac | gtg | aag | gtc | aat | aac | ggg | cca | ctg | ggg | aat | cct | 384 |
| Leu | Leu | Asn | Val | Tyr | Val | Lys | Val | Asn | Asn | Gly | Pro | Leu | Gly | Asn | Pro | |
| | | | 115 | | | | 120 | | | | | 125 | | | | |
| atc | tgg | aat | ata | tct | gga | gac | cca | aca | cgt | aca | tgg | aac | agg | gca | gaa | 432 |
| Ile | Trp | Asn | Ile | Ser | Gly | Asp | Pro | Thr | Arg | Thr | Trp | Asn | Arg | Ala | Glu | |
| | 130 | | | | | 135 | | | | | 140 | | | | | |
| ctg | gcc | att | agt | act | ttc | tgg | cct | aac | ttt | tat | cag | gtg | att | ttt | gaa | 480 |
| Leu | Ala | Ile | Ser | Thr | Phe | Trp | Pro | Asn | Phe | Tyr | Gln | Val | Ile | Phe | Glu | |
| 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| gtg | ata | act | tct | gga | cat | caa | ggc | tat | ctc | gct | atc | gat | gag | gtg | aag | 528 |
| Val | Ile | Thr | Ser | Gly | His | Gln | Gly | Tyr | Leu | Ala | Ile | Asp | Glu | Val | Lys | |
| | | | | 165 | | | | 170 | | | | | 175 | | | |
| gtg | tta | gga | cat | cca | tgt | acc | agg | act | cct | cac | ttc | ctg | cgg | att | cag | 576 |
| Val | Leu | Gly | His | Pro | Cys | Thr | Arg | Thr | Pro | His | Phe | Leu | Arg | Ile | Gln | |
| | | | 180 | | | | 185 | | | | | | 190 | | | |
| aat | gtg | gaa | gtt | aat | gct | ggc | cag | ttt | gct | acc | ttc | cag | tgc | agt | gcc | 624 |
| Asn | Val | Glu | Val | Asn | Ala | Gly | Gln | Phe | Ala | Thr | Phe | Gln | Cys | Ser | Ala | |
| | | 195 | | | | 200 | | | | | | 205 | | | | |
| atc | ggc | agg | acc | gtg | gca | gga | gac | agg | ctc | tgg | tta | cag | ggc | att | gat | 672 |
| Ile | Gly | Arg | Thr | Val | Ala | Gly | Asp | Arg | Leu | Trp | Leu | Gln | Gly | Ile | Asp | |
| | 210 | | | | | 215 | | | | | 220 | | | | | |
| gtg | cga | gat | gct | cct | ctg | aag | gaa | atc | aag | gtg | acc | agc | tcc | cga | cgc | 720 |
| Val | Arg | Asp | Ala | Pro | Leu | Lys | Glu | Ile | Lys | Val | Thr | Ser | Ser | Arg | Arg | |
| 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| ttc | att | gct | tca | ttt | aat | gtt | gtg | aat | acc | acc | aaa | cga | gat | gct | gga | 768 |
| Phe | Ile | Ala | Ser | Phe | Asn | Val | Val | Asn | Thr | Thr | Lys | Arg | Asp | Ala | Gly | |
| | | | | 245 | | | | 250 | | | | | | 255 | | |
| aag | tac | cgc | tgc | atg | att | cgc | act | gaa | gga | ggt | gtt | gga | ata | tca | aac | 816 |
| Lys | Tyr | Arg | Cys | Met | Ile | Arg | Thr | Glu | Gly | Gly | Val | Gly | Ile | Ser | Asn | |
| | | | 260 | | | | | 265 | | | | | 270 | | | |
| tat | gca | gag | ttg | gta | gtt | aaa | gaa | cca | ccc | gtt | cct | att | gcc | cca | cct | 864 |
| Tyr | Ala | Glu | Leu | Val | Val | Lys | Glu | Pro | Pro | Val | Pro | Ile | Ala | Pro | Pro | |
| | | 275 | | | | | 280 | | | | | 285 | | | | |
| cag | ctc | gcc | tct | gta | gga | gcc | acc | tac | ctg | tgg | ata | cag | ctc | aac | gcc | 912 |
| Gln | Leu | Ala | Ser | Val | Gly | Ala | Thr | Tyr | Leu | Trp | Ile | Gln | Leu | Asn | Ala | |
| | 290 | | | | | 295 | | | | | 300 | | | | | |
| aac | tcc | atc | aat | ggg | gat | ggg | ccc | att | gtg | gcc | cga | gag | gtg | gag | tac | 960 |
| Asn | Ser | Ile | Asn | Gly | Asp | Gly | Pro | Ile | Val | Ala | Arg | Glu | Val | Glu | Tyr | |
| 305 | | | | 310 | | | | | | 315 | | | | | 320 | |
| tgc | acg | gcc | agt | ggg | agc | tgg | aat | gac | cgg | cag | cca | gtc | gat | tcc | acg | 1008 |
| Cys | Thr | Ala | Ser | Gly | Ser | Trp | Asn | Asp | Arg | Gln | Pro | Val | Asp | Ser | Thr | |
| | | | | 325 | | | | 330 | | | | | | 335 | | |
| agc | tat | aaa | att | gga | cac | ctt | gac | cca | gat | aca | gaa | tat | gag | att | agt | 1056 |

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|------|
| Ser | Tyr | Lys | Ile | Gly | His | Leu | Asp | Pro | Asp | Thr | Glu | Tyr | Glu | Ile | Ser | | |
| | | | 340 | | | | | 345 | | | | | 350 | | | | |
| gtg | ctc | ctg | acc | agg | cca | ggg | gag | ggg | ggc | act | ggc | tct | cct | ggg | cca | | 1104 |
| Val | Leu | Leu | Thr | Arg | Pro | Gly | Glu | Gly | Gly | Thr | Gly | Ser | Pro | Gly | Pro | | |
| | | 355 | | | | | 360 | | | | | 365 | | | | | |
| gct | ctc | agg | aca | aga | aca | aag | tgt | gct | gat | ccc | atg | cga | ggc | cca | aga | | 1152 |
| Ala | Leu | Arg | Thr | Arg | Thr | Lys | Cys | Ala | Asp | Pro | Met | Arg | Gly | Pro | Arg | | |
| | | 370 | | | | 375 | | | | | 380 | | | | | | |
| aaa | cta | gaa | gta | gtg | gag | gtc | aaa | tct | cgg | caa | atc | act | atc | cgc | tgg | | 1200 |
| Lys | Leu | Glu | Val | Val | Glu | Val | Lys | Ser | Arg | Gln | Ile | Thr | Ile | Arg | Trp | | |
| 385 | | | | | 390 | | | | | 395 | | | | | 400 | | |
| gag | cca | ttt | gga | tat | aat | gta | act | cgt | tgc | cac | agt | tat | aat | ctc | act | | 1248 |
| Glu | Pro | Phe | Gly | Tyr | Asn | Val | Thr | Arg | Cys | His | Ser | Tyr | Asn | Leu | Thr | | |
| | | | | 405 | | | | | 410 | | | | | 415 | | | |
| gtc | cac | tac | tgt | tac | caa | gtt | gga | gga | caa | gaa | caa | gtg | cga | gaa | gaa | | 1296 |
| Val | His | Tyr | Cys | Tyr | Gln | Val | Gly | Gly | Gln | Glu | Gln | Val | Arg | Glu | Glu | | |
| | | | 420 | | | | | 425 | | | | | 430 | | | | |
| gta | agc | tgg | gat | aca | gaa | aat | tca | cac | cct | caa | cac | acg | atc | act | aac | | 1344 |
| Val | Ser | Trp | Asp | Thr | Glu | Asn | Ser | His | Pro | Gln | His | Thr | Ile | Thr | Asn | | |
| | | 435 | | | | 440 | | | | | | 445 | | | | | |
| ctg | tca | cca | tac | acc | aat | gtc | agt | gtg | aaa | ctg | atc | ctc | atg | aac | cca | | 1392 |
| Leu | Ser | Pro | Tyr | Thr | Asn | Val | Ser | Val | Lys | Leu | Ile | Leu | Met | Asn | Pro | | |
| | | 450 | | | | 455 | | | | | 460 | | | | | | |
| gag | ggc | cgg | aag | gaa | agc | caa | gaa | ctc | ata | gtg | cag | aca | gat | gaa | gac | | 1440 |
| Glu | Gly | Arg | Lys | Glu | Ser | Gln | Glu | Leu | Ile | Val | Gln | Thr | Asp | Glu | Asp | | |
| 465 | | | | 470 | | | | | 475 | | | | | 480 | | | |
| ctc | cca | ggg | gct | gtt | ccc | act | gaa | tcc | ata | caa | gga | agt | acc | ttt | gaa | | 1488 |
| Leu | Pro | Gly | Ala | Val | Pro | Thr | Glu | Ser | Ile | Gln | Gly | Ser | Thr | Phe | Glu | | |
| | | | | 485 | | | | | 490 | | | | | 495 | | | |
| gag | aag | ata | ttt | ctt | cag | tgg | aga | gaa | cca | act | caa | aca | tat | ggg | gta | | 1536 |
| Glu | Lys | Ile | Phe | Leu | Gln | Trp | Arg | Glu | Pro | Thr | Gln | Thr | Tyr | Gly | Val | | |
| | | 500 | | | | | 505 | | | | | | 510 | | | | |
| atc | act | tta | tat | gag | atc | acc | tac | aaa | gca | gtc | agt | tcc | ttt | gac | cca | | 1584 |
| Ile | Thr | Leu | Tyr | Glu | Ile | Thr | Tyr | Lys | Ala | Val | Ser | Ser | Phe | Asp | Pro | | |
| | | 515 | | | | | 520 | | | | | 525 | | | | | |
| gaa | ata | gat | tta | tcc | aat | cag | agt | gga | aga | gtt | tca | aag | ctg | gga | aat | | 1632 |
| Glu | Ile | Asp | Leu | Ser | Asn | Gln | Ser | Gly | Arg | Val | Ser | Lys | Leu | Gly | Asn | | |
| | | 530 | | | | 535 | | | | | 540 | | | | | | |
| gaa | acc | cat | ttt | ctg | ttt | ttt | gga | ctg | tat | ccg | ggg | acc | aca | tac | tcc | | 1680 |
| Glu | Thr | His | Phe | Leu | Phe | Phe | Gly | Leu | Tyr | Pro | Gly | Thr | Thr | Tyr | Ser | | |
| 545 | | | | | 550 | | | | 555 | | | | | | 560 | | |
| ttt | acc | atc | cga | gct | agc | aca | gct | aag | ggg | ttt | ggg | cct | cca | gca | aca | | 1728 |
| Phe | Thr | Ile | Arg | Ala | Ser | Thr | Ala | Lys | Gly | Phe | Gly | Pro | Pro | Ala | Thr | | |
| | | | | 565 | | | | 570 | | | | | | 575 | | | |
| aac | cag | ttc | acc | acc | aaa | ata | tca | gca | ccc | tct | atg | cca | gct | tat | gaa | | 1776 |
| Asn | Gln | Phe | Thr | Thr | Lys | Ile | Ser | Ala | Pro | Ser | Met | Pro | Ala | Tyr | Glu | | |
| | | | 580 | | | | | 585 | | | | | 590 | | | | |
| ctt | gag | aca | cct | ttg | aat | caa | act | gac | aat | acc | gtg | aca | gtc | atg | ctg | | 1824 |

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Leu | Glu | Thr | Pro | Leu | Asn | Gln | Thr | Asp | Asn | Thr | Val | Thr | Val | Met | Leu | |
| | | 595 | | | | | 600 | | | | | 605 | | | | |
| aaa | cct | gcc | cac | agc | aga | gga | gca | cct | gtc | agt | gtc | tat | caa | ata | gtt | 1872 |
| Lys | Pro | Ala | His | Ser | Arg | Gly | Ala | Pro | Val | Ser | Val | Tyr | Gln | Ile | Val | |
| | 610 | | | | | 615 | | | | | 620 | | | | | |
| gtt | gag | gaa | gaa | cgt | cct | cga | aga | act | aaa | aag | acg | aca | gaa | atc | tta | 1920 |
| Val | Glu | Glu | Glu | Arg | Pro | Arg | Arg | Thr | Lys | Lys | Thr | Thr | Glu | Ile | Leu | |
| | 625 | | | | 630 | | | | | 635 | | | | | 640 | |
| aag | tgc | tac | cca | gtg | cca | att | cac | ttc | cag | aat | gct | tct | ctg | ctg | aac | 1968 |
| Lys | Cys | Tyr | Pro | Val | Pro | Ile | His | Phe | Gln | Asn | Ala | Ser | Leu | Leu | Asn | |
| | | | | 645 | | | | | 650 | | | | | | 655 | |
| tca | cag | tac | tac | ttt | gct | gca | gaa | ttt | cct | gca | gac | agc | ctc | caa | gct | 2016 |
| Ser | Gln | Tyr | Tyr | Phe | Ala | Ala | Glu | Phe | Pro | Ala | Asp | Ser | Leu | Gln | Ala | |
| | | | | 660 | | | | 665 | | | | | | 670 | | |
| gcg | cag | cct | ttt | aca | att | ggt | gat | aat | aag | aca | tat | aat | gga | tac | tgg | 2064 |
| Ala | Gln | Pro | Phe | Thr | Ile | Gly | Asp | Asn | Lys | Thr | Tyr | Asn | Gly | Tyr | Trp | |
| | | 675 | | | | | 680 | | | | | 685 | | | | |
| aac | act | ccc | ctt | ctc | ccc | tat | aaa | agc | tac | aga | att | tat | ttc | caa | gct | 2112 |
| Asn | Thr | Pro | Leu | Leu | Pro | Tyr | Lys | Ser | Tyr | Arg | Ile | Tyr | Phe | Gln | Ala | |
| | | 690 | | | | | 695 | | | | 700 | | | | | |
| gct | agt | aga | gcc | aat | ggg | gaa | acc | aaa | ata | gac | tgt | gtc | caa | gtg | gcc | 2160 |
| Ala | Ser | Arg | Ala | Asn | Gly | Glu | Thr | Lys | Ile | Asp | Cys | Val | Gln | Val | Ala | |
| | 705 | | | | 710 | | | | | 715 | | | | | 720 | |
| aca | aaa | gga | gct | gcc | act | ccg | aaa | cca | gtc | cca | gaa | ccc | gag | aaa | cag | 2208 |
| Thr | Lys | Gly | Ala | Ala | Thr | Pro | Lys | Pro | Val | Pro | Glu | Pro | Glu | Lys | Gln | |
| | | | | 725 | | | | | 730 | | | | | 735 | | |
| aca | gac | cat | aca | gtt | aaa | att | gct | gga | gtc | atc | gcg | ggc | atc | ttg | ctg | 2256 |
| Thr | Asp | His | Thr | Val | Lys | Ile | Ala | Gly | Val | Ile | Ala | Gly | Ile | Leu | Leu | |
| | | | 740 | | | | | 745 | | | | | | 750 | | |
| ttc | gtg | att | ata | ttt | ctt | gga | gtt | gtg | ttg | gta | atg | aag | aaa | agg | aaa | 2304 |
| Phe | Val | Ile | Ile | Phe | Leu | Gly | Val | Val | Leu | Val | Met | Lys | Lys | Arg | Lys | |
| | | 755 | | | | | 760 | | | | | 765 | | | | |
| ctg | gcc | aag | aag | cgg | aaa | gag | acc | atg | agc | agc | acc | cga | cag | gag | atg | 2352 |
| Leu | Ala | Lys | Lys | Arg | Lys | Glu | Thr | Met | Ser | Ser | Thr | Arg | Gln | Glu | Met | |
| | | 770 | | | | 775 | | | | | 780 | | | | | |
| act | gtg | atg | gtg | aac | tca | atg | gac | aag | agc | tat | gct | gag | cag | ggc | aca | 2400 |
| Thr | Val | Met | Val | Asn | Ser | Met | Asp | Lys | Ser | Tyr | Ala | Glu | Gln | Gly | Thr | |
| | 785 | | | | 790 | | | | | 795 | | | | | 800 | |
| aac | tgc | gac | gag | gct | ttc | tca | ttc | atg | gac | acg | cac | aat | ctg | aat | ggg | 2448 |
| Asn | Cys | Asp | Glu | Ala | Phe | Ser | Phe | Met | Asp | Thr | His | Asn | Leu | Asn | Gly | |
| | | | | 805 | | | | | 810 | | | | | 815 | | |
| aga | tct | gtg | tct | tca | cca | tcg | tcc | ttc | aca | atg | aaa | aca | aat | aca | ctg | 2496 |
| Arg | Ser | Val | Ser | Ser | Pro | Ser | Ser | Phe | Thr | Met | Lys | Thr | Asn | Thr | Leu | |
| | | | | 820 | | | | 825 | | | | | | 830 | | |
| agc | aca | tcg | gtg | cct | aat | tcc | tat | tac | cca | gat | gaa | acc | cac | aca | atg | 2544 |
| Ser | Thr | Ser | Val | Pro | Asn | Ser | Tyr | Tyr | Pro | Asp | Glu | Thr | His | Thr | Met | |
| | | 835 | | | | | 840 | | | | | 845 | | | | |
| gcc | agc | gat | acc | agc | agc | ctg | gtg | cag | tcc | cat | act | tac | aag | aag | cga | 2592 |

| | | | | | | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|-----|------|------|------|------|-----|------|------|--|
| Ala | Ser | Asp | Thr | Ser | Ser | Leu | Val | Gln | Ser | His | Thr | Tyr | Lys | Lys | Arg | | |
| 850 | | | | | | 855 | | | | | 860 | | | | | | |
| gag | ccg | gcc | gac | gtg | ccc | tat | cag | act | ggg | cag | ctc | cac | ccc | gcc | atc | 2640 | |
| Glu | Pro | Ala | Asp | Val | Pro | Tyr | Gln | Thr | Gly | Gln | Leu | His | Pro | Ala | Ile | | |
| 865 | | | | | 870 | | | | | 875 | | | | | 880 | | |
| cgg | gtg | gca | gac | ctc | ctt | cag | cac | atc | aca | cag | atg | aag | tgt | gcg | gag | 2688 | |
| Arg | Val | Ala | Asp | Leu | Leu | Gln | His | Ile | Thr | Gln | Met | Lys | Cys | Ala | Glu | | |
| | | | | 885 | | | | | 890 | | | | | 895 | | | |
| ggc | tac | ggc | ttc | aag | gag | gaa | tac | gag | agc | ttc | ttt | gaa | ggg | cag | tct | 2736 | |
| Gly | Tyr | Gly | Phe | Lys | Glu | Glu | Tyr | Glu | Ser | Phe | Phe | Glu | Gly | Gln | Ser | | |
| | | | 900 | | | | | 905 | | | | | 910 | | | | |
| gca | cca | tgg | gac | tcg | gct | aag | aaa | gat | gag | aac | aga | atg | aag | aac | aga | 2784 | |
| Ala | Pro | Trp | Asp | Ser | Ala | Lys | Lys | Asp | Glu | Asn | Arg | Met | Lys | Asn | Arg | | |
| | | 915 | | | | | 920 | | | | | 925 | | | | | |
| tac | ggg | aat | atc | att | gca | tac | gat | cat | tcc | cga | gtg | agg | ctg | cag | aca | 2832 | |
| Tyr | Gly | Asn | Ile | Ile | Ala | Tyr | Asp | His | Ser | Arg | Val | Arg | Leu | Gln | Thr | | |
| | 930 | | | | | 935 | | | | | 940 | | | | | | |
| ata | gaa | gga | gac | aca | aac | tca | gac | tat | atc | aat | ggc | aat | tat | atc | gat | 2880 | |
| Ile | Glu | Gly | Asp | Thr | Asn | Ser | Asp | Tyr | Ile | Asn | Gly | Asn | Tyr | Ile | Asp | | |
| 945 | | | | | 950 | | | | | 955 | | | | | 960 | | |
| ggt | tat | cat | cga | ccc | aat | cat | tac | att | gct | acc | caa | ggg | cca | atg | cag | 2928 | |
| Gly | Tyr | His | Arg | Pro | Asn | His | Tyr | Ile | Ala | Thr | Gln | Gly | Pro | Met | Gln | | |
| | | | | 965 | | | | | 970 | | | | | 975 | | | |
| gaa | acc | atc | tat | gac | ttc | tgg | agg | atg | gtg | tgg | cac | gaa | aac | act | gca | 2976 | |
| Glu | Thr | Ile | Tyr | Asp | Phe | Trp | Arg | Met | Val | Trp | His | Glu | Asn | Thr | Ala | | |
| | | | 980 | | | | | 985 | | | | | 990 | | | | |
| agt | atc | atc | atg | gtg | acc | aat | ctt | gtg | gaa | gtg | gga | agg | gtc | aaa | tgc | 3024 | |
| Ser | Ile | Ile | Met | Val | Thr | Asn | Leu | Val | Glu | Val | Gly | Arg | Val | Lys | Cys | | |
| | | 995 | | | | | 1000 | | | | | 1005 | | | | | |
| tgc | aaa | tac | tgg | cca | gat | gac | aca | gag | ata | tat | aaa | gac | att | aaa | gtt | 3072 | |
| Cys | Lys | Tyr | Trp | Pro | Asp | Asp | Thr | Glu | Ile | Tyr | Lys | Asp | Ile | Lys | Val | | |
| | 1010 | | | | | 1015 | | | | | 1020 | | | | | | |
| acc | cta | ata | gaa | aca | gaa | cta | ctg | gca | gaa | tat | gtg | ata | aga | aca | ttt | 3120 | |
| Thr | Leu | Ile | Glu | Thr | Glu | Leu | Leu | Ala | Glu | Tyr | Val | Ile | Arg | Thr | Phe | | |
| 1025 | | | | | 1030 | | | | | 1035 | | | | | 1040 | | |
| gct | gtt | gaa | aag | aga | ggt | gtg | cat | gaa | atc | cga | gag | atc | aga | cag | ttt | 3168 | |
| Ala | Val | Glu | Lys | Arg | Gly | Val | His | Glu | Ile | Arg | Glu | Ile | Arg | Gln | Phe | | |
| | | | | 1045 | | | | 1050 | | | | | 1055 | | | | |
| cac | ttc | act | ggc | tgg | ccg | gat | cat | ggg | gtc | ccc | tac | cat | gcc | acc | ggc | 3216 | |
| His | Phe | Thr | Gly | Trp | Pro | Asp | His | Gly | Val | Pro | Tyr | His | Ala | Thr | Gly | | |
| | | | 1060 | | | | | 1065 | | | | | 1070 | | | | |
| ctg | ctg | gga | ttc | gtg | cgg | caa | gtc | aag | tcc | aag | agc | ccg | ccc | agt | gca | 3264 | |
| Leu | Leu | Gly | Phe | Val | Arg | Gln | Val | Lys | Ser | Lys | Ser | Pro | Pro | Ser | Ala | | |
| | | 1075 | | | | 1080 | | | | | | 1085 | | | | | |
| ggc | cca | ctg | gtg | gtg | cac | tgc | agt | gct | ggt | gca | ggg | agg | act | ggc | tgt | 3312 | |
| Gly | Pro | Leu | Val | Val | His | Cys | Ser | Ala | Gly | Ala | Gly | Arg | Thr | Gly | Cys | | |
| | 1090 | | | | | 1095 | | | | | 1100 | | | | | | |
| ttc | atc | gtc | att | gat | atc | atg | ttg | gac | atg | gcc | gaa | agg | gaa | ggg | gtc | 3360 | |

2315

Lys Arg Ser Phe Leu Lys Leu Ile Arg Gln Val Asp Lys Trp Gln Glu
 1365 1370 1375
 gaa tac aat ggc ggg gaa ggc cgc acc gtt gtg cac tgc ttg aac ggg 4176
 Glu Tyr Asn Gly Gly Glu Gly Arg Thr Val Val His Cys Leu Asn Gly
 1380 1385 1390
 gga ggc cgc agt ggg acg ttc tgc gcc atc agc atc gta tgt gag atg 4224
 Gly Gly Arg Ser Gly Thr Phe Cys Ala Ile Ser Ile Val Cys Glu Met
 1395 1400 1405
 ctc cgg cac cag aga acc gtg gat gtc ttt cac gct gtg aag aca ctg 4272
 Leu Arg His Gln Arg Thr Val Asp Val Phe His Ala Val Lys Thr Leu
 1410 1415 1420
 agg aac aac aag ccc aac atg gtc gac ctc ctg gat cag tac aag ttc 4320
 Arg Asn Asn Lys Pro Asn Met Val Asp Leu Leu Asp Gln Tyr Lys Phe
 1425 1430 1435 1440
 tgc tac gag gtg gcc ctg gaa tac ttg aat tct ggc tga tgggtgtaaac 4369
 Cys Tyr Glu Val Ala Leu Glu Tyr Leu Asn Ser Gly *
 1445 1450
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 Met Met Asn Glu Asp Ala Ala Gln Lys Ser Asp Ser
 1 5 10

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|---|-----|
| gga gag aag ttc aac ggc agt agt cag agg aga aaa aga ccc aag aag | 99 |
| Gly Glu Lys Phe Asn Gly Ser Ser Gln Arg Arg Lys Arg Pro Lys Lys | |
| 15 20 25 | |
| tct gac agc aat gca agc ttc ctc cgt gct gcc aga gca ggc aac ctg | 147 |
| Ser Asp Ser Asn Ala Ser Phe Leu Arg Ala Ala Arg Ala Gly Asn Leu | |
| 30 35 40 | |
| gac aaa gtt gtg gaa tat ctg aag ggg ggc ata gac atc aat acc tgc | 195 |
| Asp Lys Val Val Glu Tyr Leu Lys Gly Gly Ile Asp Ile Asn Thr Cys | |
| 45 50 55 60 | |
| aat cag aat gga ctc aac gct ctc cat ctg gct gcc aag gaa ggc cac | 243 |
| Asn Gln Asn Gly Leu Asn Ala Leu His Leu Ala Ala Lys Glu Gly His | |
| 65 70 75 | |
| gtg ggg ctg gtg cag gag ctg ctg gga aga ggg tcc tct gtg gat tct | 291 |
| Val Gly Leu Val Gln Glu Leu Leu Gly Arg Gly Ser Ser Val Asp Ser | |
| 80 85 90 | |
| gcc act aag aag gga aat acc gct ctt cac att gca tct ttg gct gga | 339 |
| Ala Thr Lys Lys Gly Asn Thr Ala Leu His Ile Ala Ser Leu Ala Gly | |
| 95 100 105 | |
| caa gca gaa gtt gtc aaa gtt ctt gtt aag gaa gga gcc aat att aat | 387 |
| Gln Ala Glu Val Val Lys Val Leu Val Lys Glu Gly Ala Asn Ile Asn | |
| 110 115 120 | |
| gca cag tct cag aat ggc ttt act cct tta tac atg gct gcc caa gag | 435 |
| Ala Gln Ser Gln Asn Gly Phe Thr Pro Leu Tyr Met Ala Ala Gln Glu | |
| 125 130 135 140 | |
| aat cac att gat gtt gta aaa tat ttg ctg gaa aat gga gct aat cag | 483 |
| Asn His Ile Asp Val Val Lys Tyr Leu Leu Glu Asn Gly Ala Asn Gln | |
| 145 150 155 | |
| agc act gct aca gag gat ggc ttt act cct cta gct gtg gca ctc cag | 531 |
| Ser Thr Ala Thr Glu Asp Gly Phe Thr Pro Leu Ala Val Ala Leu Gln | |
| 160 165 170 | |
| caa gga cac aac cag gcg gtg gcc atc ctc ttg gag aat gac acc aaa | 579 |
| Gln Gly His Asn Gln Ala Val Ala Ile Leu Leu Glu Asn Asp Thr Lys | |
| 175 180 185 | |
| ggg aaa gtg agg ctg cca gct ctg cat att gcc gct agg aaa gac gac | 627 |
| Gly Lys Val Arg Leu Pro Ala Leu His Ile Ala Ala Arg Lys Asp Asp | |
| 190 195 200 | |
| acc aaa tct gcc gca ctt ctg ctt cag aat gac cac aat gct gac gta | 675 |
| Thr Lys Ser Ala Ala Leu Leu Leu Gln Asn Asp His Asn Ala Asp Val | |
| 205 210 215 220 | |
| caa tcc aag atg atg gtg aat agg aca act gag agt ggt ttt acc cct | 723 |
| Gln Ser Lys Met Met Val Asn Arg Thr Thr Glu Ser Gly Phe Thr Pro | |
| 225 230 235 | |
| ttg cac ata gct gca cat tac gga aat gtc aac gtg gca act ctt ctt | 771 |
| Leu His Ile Ala Ala His Tyr Gly Asn Val Asn Val Ala Thr Leu Leu | |
| 240 245 250 | |
| cta aac cgg gga gct gct gtg gac ttc aca gcc agg aat gga atc act | 819 |
| Leu Asn Arg Gly Ala Ala Val Asp Phe Thr Ala Arg Asn Gly Ile Thr | |
| 255 260 265 | |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| cct | ctg | cat | gtg | gct | tcc | aaa | aga | gga | aat | aca | aac | atg | gtg | aag | ctc | 867 |
| Pro | Leu | His | Val | Ala | Ser | Lys | Arg | Gly | Asn | Thr | Asn | Met | Val | Lys | Leu | |
| 270 | | | | | | 275 | | | | | 280 | | | | | |
| tta | ctg | gat | cga | ggc | ggg | cag | atc | gat | gcc | aaa | act | agg | gat | ggg | ttg | 915 |
| Leu | Leu | Asp | Arg | Gly | Gly | Gln | Ile | Asp | Ala | Lys | Thr | Arg | Asp | Gly | Leu | |
| 285 | | | | | 290 | | | | | 295 | | | | | 300 | |
| aca | cca | ctt | cac | tgt | gct | gca | cga | agt | ggg | cat | gac | caa | gtg | gtg | gaa | 963 |
| Thr | Pro | Leu | His | Cys | Ala | Ala | Arg | Ser | Gly | His | Asp | Gln | Val | Val | Glu | |
| | | | | 305 | | | | | 310 | | | | | 315 | | |
| ctt | ctg | ttg | gaa | cgg | ggg | gcc | ccc | ttg | ctg | gca | agg | act | aag | aat | ggg | 1011 |
| Leu | Leu | Leu | Glu | Arg | Gly | Ala | Pro | Leu | Leu | Ala | Arg | Thr | Lys | Asn | Gly | |
| | | | 320 | | | | | 325 | | | | | 330 | | | |
| ctg | tct | cca | cta | cac | atg | gct | gcc | cag | gga | gac | cac | gtg | gaa | tgt | gtg | 1059 |
| Leu | Ser | Pro | Leu | His | Met | Ala | Ala | Gln | Gly | Asp | His | Val | Glu | Cys | Val | |
| | | | 335 | | | | 340 | | | | | 345 | | | | |
| aag | cac | ctg | tta | cag | cac | aag | gca | cct | gtt | gat | gat | gtc | acc | cta | gac | 1107 |
| Lys | His | Leu | Leu | Gln | His | Lys | Ala | Pro | Val | Asp | Asp | Val | Thr | Leu | Asp | |
| | 350 | | | | | 355 | | | | | 360 | | | | | |
| tac | ctg | aca | gcc | ctc | cac | gtt | gct | gcg | cac | tgt | ggc | cac | tac | cgt | gta | 1155 |
| Tyr | Leu | Thr | Ala | Leu | His | Val | Ala | Ala | His | Cys | Gly | His | Tyr | Arg | Val | |
| 365 | | | | | 370 | | | | | 375 | | | | | 380 | |
| acc | aaa | ctc | ctt | tta | gac | aag | aga | gcc | aat | ccg | aac | gcc | aga | gcc | ctg | 1203 |
| Thr | Lys | Leu | Leu | Leu | Asp | Lys | Arg | Ala | Asn | Pro | Asn | Ala | Arg | Ala | Leu | |
| | | | | 385 | | | | | 390 | | | | | 395 | | |
| aat | ggg | ttt | act | cca | ctg | cac | att | gcc | tgc | aag | aaa | aac | cgc | atc | aaa | 1251 |
| Asn | Gly | Phe | Thr | Pro | Leu | His | Ile | Ala | Cys | Lys | Lys | Asn | Arg | Ile | Lys | |
| | | | 400 | | | | | 405 | | | | | 410 | | | |
| gtc | atg | gaa | ctg | ctg | gtg | aaa | tat | ggg | gct | tca | atc | caa | gct | ata | aca | 1299 |
| Val | Met | Glu | Leu | Leu | Val | Lys | Tyr | Gly | Ala | Ser | Ile | Gln | Ala | Ile | Thr | |
| | | 415 | | | | 420 | | | | | | 425 | | | | |
| gag | tct | ggc | ctc | aca | cca | ata | cat | gtg | gct | gcc | ttc | atg | ggc | cac | ttg | 1347 |
| Glu | Ser | Gly | Leu | Thr | Pro | Ile | His | Val | Ala | Ala | Phe | Met | Gly | His | Leu | |
| | 430 | | | | | 435 | | | | | 440 | | | | | |
| aac | att | gtc | ctc | ctt | ctg | ctg | cag | aac | gga | gcc | tct | cca | gat | gtc | act | 1395 |
| Asn | Ile | Val | Leu | Leu | Leu | Leu | Gln | Asn | Gly | Ala | Ser | Pro | Asp | Val | Thr | |
| | 445 | | | | 450 | | | | 455 | | | | | 460 | | |
| aac | att | cgt | ggg | gag | acg | gca | cta | cac | atg | gca | gcc | cga | gcc | ggg | cag | 1443 |
| Asn | Ile | Arg | Gly | Glu | Thr | Ala | Leu | His | Met | Ala | Ala | Arg | Ala | Gly | Gln | |
| | | | 465 | | | | | 470 | | | | | 475 | | | |
| gtg | gaa | gtg | gtc | cga | tgc | ctc | ctg | aga | aat | ggg | gcc | ctt | gtt | gat | gcc | 1491 |
| Val | Glu | Val | Val | Arg | Cys | Leu | Leu | Arg | Asn | Gly | Ala | Leu | Val | Asp | Ala | |
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| aga | gcc | agg | gag | gaa | cag | aca | cct | tta | cat | att | gcc | tcc | cgc | ctg | ggg | 1539 |
| Arg | Ala | Arg | Glu | Glu | Gln | Thr | Pro | Leu | His | Ile | Ala | Ser | Arg | Leu | Gly | |
| | 495 | | | | | | 500 | | | | | 505 | | | | |
| aag | aca | gaa | att | gtc | cag | ctg | ctt | cta | caa | cat | atg | gct | cat | cca | gat | 1587 |
| Lys | Thr | Glu | Ile | Val | Gln | Leu | Leu | Leu | Gln | His | Met | Ala | His | Pro | Asp | |
| | 510 | | | | | 515 | | | | | 520 | | | | | |

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|---|------|
| gcg gcc act aca aat ggg tac aca cca ctg cac atc tct gcc cgg gag Ala Ala Thr Thr Asn Gly Tyr Thr Pro Leu His Ile Ser Ala Arg Glu 525 530 535 540 | 1635 |
| ggc cag gtg gat gtg gca tca gtc cta ttg gaa gca gga gca gcc cac Gly Gln Val Asp Val Ala Ser Val Leu Leu Glu Ala Gly Ala Ala His 545 550 555 | 1683 |
| tcc tta gct acc aag aag ggt ttt act ccc ctg cat gta gca gcc aag Ser Leu Ala Thr Lys Lys Gly Phe Thr Pro Leu His Val Ala Ala Lys 560 565 570 | 1731 |
| tat gga agc ctg gat gtg gca aaa ctt ctc ttg caa cgc cgt gct gcc Tyr Gly Ser Leu Asp Val Ala Lys Leu Leu Leu Gln Arg Arg Ala Ala 575 580 585 | 1779 |
| gca gat tct gca ggg aag aac ggc ctt acc ccg ctc cat gtt gct gct Ala Asp Ser Ala Gly Lys Asn Gly Leu Thr Pro Leu His Val Ala Ala 590 595 600 | 1827 |
| cat tat gac aac cag aag gtg gcg ctg ctg tta ctg gag aag ggt gct His Tyr Asp Asn Gln Lys Val Ala Leu Leu Leu Leu Glu Lys Gly Ala 605 610 615 620 | 1875 |
| tcc cct cat gcc act gcc aag aat ggc tat act ccg tta cat att gct Ser Pro His Ala Thr Ala Lys Asn Gly Tyr Thr Pro Leu His Ile Ala 625 630 635 | 1923 |
| gcc aag aag aat caa atg cag ata gct tcc aca ctc ctg aac tat gga Ala Lys Lys Asn Gln Met Gln Ile Ala Ser Thr Leu Leu Asn Tyr Gly 640 645 650 | 1971 |
| gca gag aca aac att gtg aca aag caa gga gta act cca ctc cat ctg Ala Glu Thr Asn Ile Val Thr Lys Gln Gly Val Thr Pro Leu His Leu 655 660 665 | 2019 |
| gcc tcg cag gag ggg cac aca gat atg gtt acc ttg ctt ctg gat aag Ala Ser Gln Glu Gly His Thr Asp Met Val Thr Leu Leu Leu Asp Lys 670 675 680 | 2067 |
| gga gcc aat atc cac atg tca act aag agt gga ctc aca tcc tta cac Gly Ala Asn Ile His Met Ser Thr Lys Ser Gly Leu Thr Ser Leu His 685 690 695 700 | 2115 |
| ctt gca gcc cag gaa gat aaa gtg aat gtt gct gat att ctc acc aag Leu Ala Ala Gln Glu Asp Lys Val Asn Val Ala Asp Ile Leu Thr Lys 705 710 715 | 2163 |
| cat gga gct gat cag gat gct cat aca aag ctt ggt tac aca cct tta His Gly Ala Asp Gln Asp Ala His Thr Lys Leu Gly Tyr Thr Pro Leu 720 725 730 | 2211 |
| att gtg gcc tgt cac tat gga aat gtg aaa atg gtc aac ttt ctt ctg Ile Val Ala Cys His Tyr Gly Asn Val Lys Met Val Asn Phe Leu Leu 735 740 745 | 2259 |
| aag cag gga gca aat gtt aac gca aaa acc aag aac ggc tac acg cct Lys Gln Gly Ala Asn Val Asn Ala Lys Thr Lys Asn Gly Tyr Thr Pro 750 755 760 | 2307 |
| ttg cac cag gcc gct cag cag ggt cac acg cac atc atc aac gtc ctg Leu His Gln Ala Ala Gln Gln Gly His Thr His Ile Ile Asn Val Leu 765 770 775 780 | 2355 |

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|---|------|
| ctc cag cat ggg gcc aag ccc aac gcc acc act gcg aat ggc aac act Leu Gln His Gly Ala Lys Pro Asn Ala Thr Thr Ala Asn Gly Asn Thr 785 790 795 | 2403 |
| gcc ttg gcg att gct aag cgt ctg ggc tac atc tcc gtg gtc gac acc Ala Leu Ala Ile Ala Lys Arg Leu Gly Tyr Ile Ser Val Val Asp Thr 800 805 810 | 2451 |
| ctg aag gtt gtg act gag gag gtc acc acc acc acc aca act att aca Leu Lys Val Val Thr Glu Glu Val Thr Thr Thr Thr Thr Thr Ile Thr 815 820 825 | 2499 |
| gaa aaa cac aaa cta aat gta cct gag acg atg act gag gtt ctt gat Glu Lys His Lys Leu Asn Val Pro Glu Thr Met Thr Glu Val Leu Asp 830 835 840 | 2547 |
| gtt tct gat gaa gag ggt gat gac aca atg act ggt gat ggg gga gaa Val Ser Asp Glu Glu Gly Asp Asp Thr Met Thr Gly Asp Gly Gly Glu 845 850 855 860 | 2595 |
| tac ctt agg cct gag gac cta aaa gaa ctg ggt gat gac tca cta ccc Tyr Leu Arg Pro Glu Asp Leu Lys Glu Leu Gly Asp Asp Ser Leu Pro 865 870 875 | 2643 |
| agc agt cag ttc ctg gat ggt atg aat tac ctg cga tac agc ttg gag Ser Ser Gln Phe Leu Asp Gly Met Asn Tyr Leu Arg Tyr Ser Leu Glu 880 885 890 | 2691 |
| gga gga cga tct gac agc ctt cga tcc ttc agt tcc gac agg tct cac Gly Gly Arg Ser Asp Ser Leu Arg Ser Phe Ser Ser Asp Arg Ser His 895 900 905 | 2739 |
| act ctg agc cat gcc tcc tac ctg agg gac agt gcc gtg atg gat gac Thr Leu Ser His Ala Ser Tyr Leu Arg Asp Ser Ala Val Met Asp Asp 910 915 920 | 2787 |
| tca gtt gtg att ccc agt cac cag gtg tca act cta gcc aag gag gca Ser Val Val Ile Pro Ser His Gln Val Ser Thr Leu Ala Lys Glu Ala 925 930 935 940 | 2835 |
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| gtg gct ctt tct tct agt cct att cat tca ggt ttc ctg gtt agt ttt Val Ala Leu Ser Ser Ser Pro Ile His Ser Gly Phe Leu Val Ser Phe 960 965 970 | 2931 |
| atg gtg gat gcc cga ggt ggt gct atg cga gga tgc aga cac aat ggg Met Val Asp Ala Arg Gly Gly Ala Met Arg Gly Cys Arg His Asn Gly 975 980 985 | 2979 |
| ctc cga atc att att cca cct cgg aaa tgt act gct cca acg cga gtc Leu Arg Ile Ile Ile Pro Pro Arg Lys Cys Thr Ala Pro Thr Arg Val 990 995 1000 | 3027 |
| acc tgc cga ctg gtc aag cgc cac aga ctg gca aca atg cct cca atg Thr Cys Arg Leu Val Lys Arg His Arg Leu Ala Thr Met Pro Pro Met 1005 1010 1015 1020 | 3075 |
| gtg gaa gga gaa ggc ctg gcc agt cgc ctg atc gaa gtt gga cct tct Val Glu Gly Glu Gly Leu Ala Ser Arg Leu Ile Glu Val Gly Pro Ser 1025 1030 1035 | 3123 |

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|---|------|
| ggt gct cag ttc ctt ggt aaa ctt cac ctg cca acg gct cct ccc cca Gly Ala Gln Phe Leu Gly Lys Leu His Leu Pro Thr Ala Pro Pro Pro 1040 1045 1050 | 3171 |
| ctt aat gag gga gaa agt ttg gtc agc cgc att ctt cag ctg ggg cct Leu Asn Glu Gly Glu Ser Leu Val Ser Arg Ile Leu Gln Leu Gly Pro 1055 1060 1065 | 3219 |
| cct gga acc aaa ttc ctt ggg cct gtg atc gtg gag atc cct cac ttt Pro Gly Thr Lys Phe Leu Gly Pro Val Ile Val Glu Ile Pro His Phe 1070 1075 1080 | 3267 |
| gcg gcc ctt cga gga aag gaa agg gaa ctg gtg gtc ctg cgc agt gag Ala Ala Leu Arg Gly Lys Glu Arg Glu Leu Val Val Leu Arg Ser Glu 1085 1090 1095 1100 | 3315 |
| aat ggg gac agc tgg aaa gag cat ttc tgt gac tac act gaa gat gaa Asn Gly Asp Ser Trp Lys Glu His Phe Cys Asp Tyr Thr Glu Asp Glu 1105 1110 1115 | 3363 |
| ttg aat gaa att ctt aac ggc atg gat gaa gta ctg gat agc cca gaa Leu Asn Glu Ile Leu Asn Gly Met Asp Glu Val Leu Asp Ser Pro Glu 1120 1125 1130 | 3411 |
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| cag tac ttt gca gtg gtg tct cgt atc aaa cag gac agc aat ctg att Gln Tyr Phe Ala Val Val Ser Arg Ile Lys Gln Asp Ser Asn Leu Ile 1150 1155 1160 | 3507 |
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| gcc gtc ttc cca gag ggg gca ctc acc aag cgg atc cgt gta ggc ctg Ala Val Phe Pro Glu Gly Ala Leu Thr Lys Arg Ile Arg Val Gly Leu 1185 1190 1195 | 3603 |
| cag gct caa cct atg cac agt gag ctg gtt aag aag atc cta ggc aac Gln Ala Gln Pro Met His Ser Glu Leu Val Lys Lys Ile Leu Gly Asn 1200 1205 1210 | 3651 |
| aaa gct acc ttc agc cct ata gtc act ttg gaa cct aga aga aga aaa Lys Ala Thr Phe Ser Pro Ile Val Thr Leu Glu Pro Arg Arg Arg Lys 1215 1220 1225 | 3699 |
| ttc cac aaa cca att acc atg acc att cct gtc ccc aaa gct tca agt Phe His Lys Pro Ile Thr Met Thr Ile Pro Val Pro Lys Ala Ser Ser 1230 1235 1240 | 3747 |
| gat gtc atg ttg aat ggt ttt ggg gga gat gca cca acc tta aga tta Asp Val Met Leu Asn Gly Phe Gly Gly Asp Ala Pro Thr Leu Arg Leu 1245 1250 1255 1260 | 3795 |
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| aca gga act acg cca tta aca ttt gtc aat gaa tgt gtt tcc ttt aca Thr Gly Thr Thr Pro Leu Thr Phe Val Asn Glu Cys Val Ser Phe Thr 1280 1285 1290 | 3891 |

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| aca aac gtg tct gcc agg ttc tgg ctg ata gat tgt cga cag atc cag Thr Asn Val Ser Ala Arg Phe Trp Leu Ile Asp Cys Arg Gln Ile Gln 1295 1300 1305 | 3939 |
| gaa tcc gtt act ttt gca tca caa gta tac aga gaa att atc tgc gta Glu Ser Val Thr Phe Ala Ser Gln Val Tyr Arg Glu Ile Ile Cys Val 1310 1315 1320 | 3987 |
| cct tat atg gcc aaa ttt gta gtg ttt gcc aaa tca cat gac ccc att Pro Tyr Met Ala Lys Phe Val Val Phe Ala Lys Ser His Asp Pro Ile 1325 1330 1335 1340 | 4035 |
| gaa gcc agg ttg agg tgt ttc tgc atg act gat gat aaa gtg gat aag Glu Ala Arg Leu Arg Cys Phe Cys Met Thr Asp Asp Lys Val Asp Lys 1345 1350 1355 | 4083 |
| acc ctt gaa caa caa gaa aat ttt gct gag gtg gcc aga agc agg gat Thr Leu Glu Gln Gln Glu Asn Phe Ala Glu Val Ala Arg Ser Arg Asp 1360 1365 1370 | 4131 |
| gtg gag gtg tta gaa gga aaa ccc atc tac gtt gat tgt ttc ggc aac Val Glu Val Leu Glu Gly Lys Pro Ile Tyr Val Asp Cys Phe Gly Asn 1375 1380 1385 | 4179 |
| ttg gta cca tta act aaa agt ggc cag cat cat ata ttc agt ttt ttt Leu Val Pro Leu Thr Lys Ser Gly Gln His His Ile Phe Ser Phe Phe 1390 1395 1400 | 4227 |
| gcc ttc aaa gaa aat aga ctt cct cta ttt gtc aag gta cgc gat acg Ala Phe Lys Glu Asn Arg Leu Pro Leu Phe Val Lys Val Arg Asp Thr 1405 1410 1415 1420 | 4275 |
| act cag gaa cct tgc gga cga cta tca ttt atg aag gag cca aaa tcc Thr Gln Glu Pro Cys Gly Arg Leu Ser Phe Met Lys Glu Pro Lys Ser 1425 1430 1435 | 4323 |
| acg aga ggc ctg gtg cat caa gct att tgc aac tta aac atc act ttg Thr Arg Gly Leu Val His Gln Ala Ile Cys Asn Leu Asn Ile Thr Leu 1440 1445 1450 | 4371 |
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| atc gat atg aca tca gaa aaa aat cca cag gat gag cag gaa cgg atc Ile Asp Met Thr Ser Glu Lys Asn Pro Gln Asp Glu Gln Glu Arg Ile 1470 1475 1480 | 4467 |
| gag gaa agg ctg gct tat att gct gat cac ctt ggc ttc agc tgg aca Glu Glu Arg Leu Ala Tyr Ile Ala Asp His Leu Gly Phe Ser Trp Thr 1485 1490 1495 1500 | 4515 |
| gaa tta gca aga gaa ctg gat ttc act gag gag caa att cat caa att Glu Leu Ala Arg Glu Leu Asp Phe Thr Glu Glu Gln Ile His Gln Ile 1505 1510 1515 | 4563 |
| cga att gaa aat ccc aac tct ctt caa gac cag agt cat gca ctg ttg Arg Ile Glu Asn Pro Asn Ser Leu Gln Asp Gln Ser His Ala Leu Leu 1520 1525 1530 | 4611 |
| aag tac tgg cta gag agg gat ggg aaa cat gct aca gat acc aac ctc Lys Tyr Trp Leu Glu Arg Asp Gly Lys His Ala Thr Asp Thr Asn Leu 1535 1540 1545 | 4659 |

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| gag acc aac aca gaa cct ctc cag gag cgc atc agt cat agt tat gca Glu Thr Asn Thr Glu Pro Leu Gln Glu Arg Ile Ser His Ser Tyr Ala 1565 1570 1575 1580 | 4755 |
| gaa att gaa cag acc att aca ctg gat cat agt gaa ggg ttc tcg gta Glu Ile Glu Gln Thr Ile Thr Leu Asp His Ser Glu Gly Phe Ser Val 1585 1590 1595 | 4803 |
| ctt caa gag gag tta tgc act gca cag cac aag cag aaa gag gag caa Leu Gln Glu Glu Leu Cys Thr Ala Gln His Lys Gln Lys Glu Glu Gln 1600 1605 1610 | 4851 |
| gct gtt tct aaa gaa agt gag acc tgc gat cac cct cct atc gtc tca Ala Val Ser Lys Glu Ser Glu Thr Cys Asp His Pro Pro Ile Val Ser 1615 1620 1625 | 4899 |
| gag gaa gac att tct gtt ggt tat tcc act ttt cag gat ggc gtc ccc Glu Glu Asp Ile Ser Val Gly Tyr Ser Thr Phe Gln Asp Gly Val Pro 1630 1635 1640 | 4947 |
| aaa act gag ggg gac agc tca tca aca gca ctc ttt ccc caa act cac Lys Thr Glu Gly Asp Ser Ser Ser Thr Ala Leu Phe Pro Gln Thr His 1645 1650 1655 1660 | 4995 |
| aag gag caa gtt caa cag gat ttc tca ggg aaa atg caa gac ctg cct Lys Glu Gln Val Gln Gln Asp Phe Ser Gly Lys Met Gln Asp Leu Pro 1665 1670 1675 | 5043 |
| gaa gag tca tct ctg gaa tat cag cag gaa tat ttt gtg aca act cca Glu Glu Ser Ser Leu Glu Tyr Gln Gln Glu Tyr Phe Val Thr Thr Pro 1680 1685 1690 | 5091 |
| gga aca gaa aca tca gag act cag aag gct atg ata gta ccc agc tct Gly Thr Glu Thr Ser Glu Thr Gln Lys Ala Met Ile Val Pro Ser Ser 1695 1700 1705 | 5139 |
| ccc agc aag aca cct gag gaa gtt agc acc cct gca gag gag gag aag Pro Ser Lys Thr Pro Glu Glu Val Ser Thr Pro Ala Glu Glu Glu Lys 1710 1715 1720 | 5187 |
| ctg tac ctc cag acc cca aca tcc agc gag cgg gga ggc tct ccc atc Leu Tyr Leu Gln Thr Pro Thr Ser Ser Glu Arg Gly Gly Ser Pro Ile 1725 1730 1735 1740 | 5235 |
| ata caa gaa ccc gaa gag ccc tca gag cac aga gag gag agc tct ccg Ile Gln Glu Pro Glu Glu Pro Ser Glu His Arg Glu Glu Ser Ser Pro 1745 1750 1755 | 5283 |
| cgg aaa acc agc ctc gta ata gtg gag tct gcc gat aac cag cct gag Arg Lys Thr Ser Leu Val Ile Val Glu Ser Ala Asp Asn Gln Pro Glu 1760 1765 1770 | 5331 |
| acc tgt gaa aga ctc gat gaa gat gca gct ttt gaa aag gga gac gat Thr Cys Glu Arg Leu Asp Glu Asp Ala Ala Phe Glu Lys Gly Asp Asp 1775 1780 1785 | 5379 |
| atg cct gaa ata ccc cca gaa aca gtc aca gaa gaa gaa tac att gat Met Pro Glu Ile Pro Pro Glu Thr Val Thr Glu Glu Glu Tyr Ile Asp 1790 1795 1800 | 5427 |

gag cat gga cac acc gtg gta aag aag gtt act agg aaa atc att agg 5475
 Glu His Gly His Thr Val Val Lys Lys Val Thr Arg Lys Ile Ile Arg
 1805 1810 1815 1820
 cgg tat gta tcc tct gaa ggc aca gag aaa gaa gag att atg gtg cag 5523
 Arg Tyr Val Ser Ser Glu Gly Thr Glu Lys Glu Glu Ile Met Val Gln
 1825 1830 1835
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 Gly Met Pro Gln Glu Pro Val Asn Ile Glu Glu Gly Asp Gly Tyr Ser
 1840 1845 1850
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 Lys Val Ile Lys Arg Val Val Leu Lys Ser Asp Thr Glu Gln Ser Glu
 1855 1860 1865
 gac aac aat gag taa agccatcaca cagaagaggg ctgtggtgaa ggaccagcat 5674
 Asp Asn Asn Glu *
 1870
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 Met Gly Cys Ile Met Thr Glu Ala Leu Glu Asn Lys Ser Val
 1 5 10
 cat ttt ccc cta aga agt aaa tac aac agg ctt aca aaa gtt gct cgc 157
 His Phe Pro Leu Arg Ser Lys Tyr Asn Arg Leu Thr Lys Val Ala Arg
 15 20 25 30

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|---|-----|
| ttt ctc caa gaa aat cct tca tgt tta cta tgt aat ata cta cac cac | 205 |
| Phe Leu Gln Glu Asn Pro Ser Cys Leu Leu Cys Asn Ile Leu His His | |
| 35 40 45 | |
| tat ctg cac cag gca aat tac tcc atc att gat gat gct aca atg agc | 253 |
| Tyr Leu His Gln Ala Asn Tyr Ser Ile Ile Asp Asp Ala Thr Met Ser | |
| 50 55 60 | |
| gat gga ctt cct gct ttg gta act ttg aag aaa ggt tta gtt gca ctg | 301 |
| Asp Gly Leu Pro Ala Leu Val Thr Leu Lys Lys Gly Leu Val Ala Leu | |
| 65 70 75 | |
| gca agg cag tgg atg aag ttt att gtg gtg aca cca gcc ttt aaa gga | 349 |
| Ala Arg Gln Trp Met Lys Phe Ile Val Val Thr Pro Ala Phe Lys Gly | |
| 80 85 90 | |
| gtt agc tta cat aga cca gct cag cct ctg aaa cct caa ata gct atg | 397 |
| Val Ser Leu His Arg Pro Ala Gln Pro Leu Lys Pro Gln Ile Ala Met | |
| 95 100 105 110 | |
| gac cat gaa cat gaa gat gga ctt gga ttg gac aat ggg ggt ggt ctt | 445 |
| Asp His Glu His Glu Asp Gly Leu Gly Leu Asp Asn Gly Gly Gly Leu | |
| 115 120 125 | |
| caa agt gat acc agt gct gat gga gca gaa ttt gag ttc gat gca gcc | 493 |
| Gln Ser Asp Thr Ser Ala Asp Gly Ala Glu Phe Glu Phe Asp Ala Ala | |
| 130 135 140 | |
| aca gtc agt gaa cac aca atg cta tta gaa gga aca gct aac cgg cct | 541 |
| Thr Val Ser Glu His Thr Met Leu Leu Glu Gly Thr Ala Asn Arg Pro | |
| 145 150 155 | |
| cca cct ggt agc tct gga cct gta act gga gct gag ata atg agg aaa | 589 |
| Pro Pro Gly Ser Ser Gly Pro Val Thr Gly Ala Glu Ile Met Arg Lys | |
| 160 165 170 | |
| ctt tct aaa act cat acc cat agt gac tct gca tta aaa ata aag ggc | 637 |
| Leu Ser Lys Thr His Thr His Ser Asp Ser Ala Leu Lys Ile Lys Gly | |
| 175 180 185 190 | |
| att cac cca tat cat tct ctg agc tat acc agt gga gac act gcc act | 685 |
| Ile His Pro Tyr His Ser Leu Ser Tyr Thr Ser Gly Asp Thr Ala Thr | |
| 195 200 205 | |
| gat tct cca gtg cat gtt gga cgt gct ggg atg cca gta aag gac agt | 733 |
| Asp Ser Pro Val His Val Gly Arg Ala Gly Met Pro Val Lys Asp Ser | |
| 210 215 220 | |
| cca agg aag gag agc cta ctc agc tac ctg act gga agc ttc cca agc | 781 |
| Pro Arg Lys Glu Ser Leu Leu Ser Tyr Leu Thr Gly Ser Phe Pro Ser | |
| 225 230 235 | |
| ctg cac aac ctc ctg gaa ggt act cct cag aga agc agt gct gct gtg | 829 |
| Leu His Asn Leu Leu Glu Gly Thr Pro Gln Arg Ser Ser Ala Ala Val | |
| 240 245 250 | |
| aaa agt agc tcc cta acg aga aca gga aat aca gta gcc act gat atg | 877 |
| Lys Ser Ser Ser Leu Thr Arg Thr Gly Asn Thr Val Ala Thr Asp Met | |
| 255 260 265 270 | |
| tta tct gaa cat ccc ttg cta tct gag cca tca tct gtg agt ttc tat | 925 |
| Leu Ser Glu His Pro Leu Leu Ser Glu Pro Ser Ser Val Ser Phe Tyr | |
| 275 280 285 | |

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|---|------|
| aat tgg atg tca aat gct gtg ggt aat cga gga agt gtg tta caa gaa | 973 |
| Asn Trp Met Ser Asn Ala Val Gly Asn Arg Gly Ser Val Leu Gln Glu | |
| 290 295 300 | |
| tct cct gtt aca aaa tca gga cac aat agt ctt ccc aca ggt gtt gca | 1021 |
| Ser Pro Val Thr Lys Ser Gly His Asn Ser Leu Pro Thr Gly Val Ala | |
| 305 310 315 | |
| ccc aat ctt cca aca ata ccc tca gcc tca gat ttc aac act gtc ttg | 1069 |
| Pro Asn Leu Pro Thr Ile Pro Ser Ala Ser Asp Phe Asn Thr Val Leu | |
| 320 325 330 | |
| tct agt gac caa aat act ttg gat ggg aca cat tct cag cat agc acc | 1117 |
| Ser Ser Asp Gln Asn Thr Leu Asp Gly Thr His Ser Gln His Ser Thr | |
| 335 340 345 350 | |
| agt cag gat gat gtg gca ggt gta gaa gaa gca aac caa ggg ttt cct | 1165 |
| Ser Gln Asp Asp Val Ala Gly Val Glu Glu Ala Asn Gln Gly Phe Pro | |
| 355 360 365 | |
| gct gtt cag ctt gct gat gca cag gtt gtt ttc aag cct ctt ctg agt | 1213 |
| Ala Val Gln Leu Ala Asp Ala Gln Val Val Phe Lys Pro Leu Leu Ser | |
| 370 375 380 | |
| cat aca ggg atc cag tca cag gat aca atg cca ttc tgc tac cga atg | 1261 |
| His Thr Gly Ile Gln Ser Gln Asp Thr Met Pro Phe Cys Tyr Arg Met | |
| 385 390 395 | |
| tac ttt gga gaa cac ctt tca ttt tca ggg act ttg gac tgc ctc aga | 1309 |
| Tyr Phe Gly Glu His Leu Ser Phe Ser Gly Thr Leu Asp Cys Leu Arg | |
| 400 405 410 | |
| gca gat att gtg gat tca gac aca gcc aaa gag aga aaa ggc aaa aga | 1357 |
| Ala Asp Ile Val Asp Ser Asp Thr Ala Lys Glu Arg Lys Gly Lys Arg | |
| 415 420 425 430 | |
| gca aga agg caa ggc cat gtg aat ctt cct cca ctt gag ttc aaa cca | 1405 |
| Ala Arg Arg Gln Gly His Val Asn Leu Pro Pro Leu Glu Phe Lys Pro | |
| 435 440 445 | |
| gca tta atg ttg gga acc ttt agc atc agt gct gtt gta atg gaa aag | 1453 |
| Ala Leu Met Leu Gly Thr Phe Ser Ile Ser Ala Val Val Met Glu Lys | |
| 450 455 460 | |
| tcc gtg tgc acc cct cag aac tct acc agt gcc ctt tct ttt cat gat | 1501 |
| Ser Val Cys Thr Pro Gln Asn Ser Thr Ser Ala Leu Ser Phe His Asp | |
| 465 470 475 | |
| ctc agc aag cgg tat tat aac acc ttt cac tgc aac ttt act att tcc | 1549 |
| Leu Ser Lys Arg Tyr Tyr Asn Thr Phe His Cys Asn Phe Thr Ile Ser | |
| 480 485 490 | |
| tgt cag tca ata agc cag cat gta gac atg gct ttg gtt cgt ctt att | 1597 |
| Cys Gln Ser Ile Ser Gln His Val Asp Met Ala Leu Val Arg Leu Ile | |
| 495 500 505 510 | |
| cat cag ttt agc aca atg ata gat gac atc aaa gca act cag act gat | 1645 |
| His Gln Phe Ser Thr Met Ile Asp Asp Ile Lys Ala Thr Gln Thr Asp | |
| 515 520 525 | |
| att aaa ctt agc aga tat aca gcc gga tct gct tcc cca aca cct acc | 1693 |
| Ile Lys Leu Ser Arg Tyr Thr Ala Gly Ser Ala Ser Pro Thr Pro Thr | |
| 530 535 540 | |

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|---|------|
| ttc aaa acc aga aaa cat cgg gac ttt cgt tca tct gac ttt agc cgc | 1741 |
| Phe Lys Thr Arg Lys His Arg Asp Phe Arg Ser Ser Asp Phe Ser Arg | |
| 545 550 555 | |
| agt tct aga gga agt ctt aat ggt ggc aat aga gta aat aat gca aag | 1789 |
| Ser Ser Arg Gly Ser Leu Asn Gly Gly Asn Arg Val Asn Asn Ala Lys | |
| 560 565 570 | |
| aac aaa cgg acc aac aat gag aat aac aaa aag gaa tct cga aac aag | 1837 |
| Asn Lys Arg Thr Asn Asn Glu Asn Asn Lys Lys Glu Ser Arg Asn Lys | |
| 575 580 585 590 | |
| aat tca tta gga aga tct gaa aga aga aca tca aaa gtg tct agg aaa | 1885 |
| Asn Ser Leu Gly Arg Ser Glu Arg Arg Thr Ser Lys Val Ser Arg Lys | |
| 595 600 605 | |
| ggt tca aaa gat gtg gtg gat cac atg act att cat atg gat gac tct | 1933 |
| Gly Ser Lys Asp Val Val Asp His Met Thr Ile His Met Asp Asp Ser | |
| 610 615 620 | |
| gat tca att aca gtg tca gaa caa agt gag cct tca gct gag tgc tgg | 1981 |
| Asp Ser Ile Thr Val Ser Glu Gln Ser Glu Pro Ser Ala Glu Cys Trp | |
| 625 630 635 | |
| cag aat atg tat aaa ttg ctt aac ttc tat tca ctt atc tcc gat cca | 2029 |
| Gln Asn Met Tyr Lys Leu Leu Asn Phe Tyr Ser Leu Ile Ser Asp Pro | |
| 640 645 650 | |
| aca gga ata ttg gaa aag tct tca gaa aca ttt gga cca gca gga gtt | 2077 |
| Thr Gly Ile Leu Glu Lys Ser Ser Glu Thr Phe Gly Pro Ala Gly Val | |
| 655 660 665 670 | |
| cgg agc cct aca gag cca aca tgt aaa gtt gtg ttt gag aat gaa caa | 2125 |
| Arg Ser Pro Thr Glu Pro Thr Cys Lys Val Val Phe Glu Asn Glu Gln | |
| 675 680 685 | |
| gac aac agc agt ttg act aag act cag agg aaa cgt agc ttg gta act | 2173 |
| Asp Asn Ser Ser Leu Thr Lys Thr Gln Arg Lys Arg Ser Leu Val Thr | |
| 690 695 700 | |
| tct gaa cct cag cat gtt act cta ata gtg ttt ggg att ggc atg gtg | 2221 |
| Ser Glu Pro Gln His Val Thr Leu Ile Val Phe Gly Ile Gly Met Val | |
| 705 710 715 | |
| aac cgc aca cac cta gag gca gat att ggt gga cta aca atg gaa tca | 2269 |
| Asn Arg Thr His Leu Glu Ala Asp Ile Gly Gly Leu Thr Met Glu Ser | |
| 720 725 730 | |
| gaa ctg aag agg atc cat ggc agt ttt act ctt aag gaa aaa atg aaa | 2317 |
| Glu Leu Lys Arg Ile His Gly Ser Phe Thr Leu Lys Glu Lys Met Lys | |
| 735 740 745 750 | |
| gat gtt tta cat caa aag atg act gag act tgt gct act gct cat att | 2365 |
| Asp Val Leu His Gln Lys Met Thr Glu Thr Cys Ala Thr Ala His Ile | |
| 755 760 765 | |
| ggt ggg gtt aat att gtg ctg ctt gaa ggg att aca cca aat ata caa | 2413 |
| Gly Gly Val Asn Ile Val Leu Leu Glu Gly Ile Thr Pro Asn Ile Gln | |
| 770 775 780 | |
| ctg gag gat ttt cct aca tct cct aca agt aca gcc aaa caa gag ttt | 2461 |
| Leu Glu Asp Phe Pro Thr Ser Pro Thr Ser Thr Ala Lys Gln Glu Phe | |
| 785 790 795 | |

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|---|------|
| cta act gta gtg aaa tgt agt att gcc aag tcc caa gcc ctc tac agt Leu Thr Val Val Lys Cys Ser Ile Ala Lys Ser Gln Ala Leu Tyr Ser 800 805 810 | 2509 |
| gcc caa aga ggg ctg aag aca aac aat gct gct gtg ttc aaa gta gga Ala Gln Arg Gly Leu Lys Thr Asn Asn Ala Ala Val Phe Lys Val Gly 815 820 825 830 | 2557 |
| gct atc agt atc aac att cct cag cac cct gcc acc tta cat agc atg Ala Ile Ser Ile Asn Ile Pro Gln His Pro Ala Thr Leu His Ser Met 835 840 845 | 2605 |
| atg gtt cga agt tct cac caa cta tct aaa caa atc tca gac cta atc Met Val Arg Ser Ser His Gln Leu Ser Lys Gln Ile Ser Asp Leu Ile 850 855 860 | 2653 |
| aga cag cct tct aca gcc cca cag cct gta aaa gaa gat att gca acc Arg Gln Pro Ser Thr Ala Pro Gln Pro Val Lys Glu Asp Ile Ala Thr 865 870 875 | 2701 |
| cca cta cct tct gaa aaa acc cca aca agt gtt aat caa act cct gtt Pro Leu Pro Ser Glu Lys Thr Pro Thr Ser Val Asn Gln Thr Pro Val 880 885 890 | 2749 |
| gaa aca aat gaa ttt cct cag cta cca gaa ggc tta gaa aag aag cct Glu Thr Asn Glu Phe Pro Gln Leu Pro Glu Gly Leu Glu Lys Lys Pro 895 900 905 910 | 2797 |
| att gtt ctt aaa ttc agt gcc atg tta gat ggt ata gcc att gga gca Ile Val Leu Lys Phe Ser Ala Met Leu Asp Gly Ile Ala Ile Gly Ala 915 920 925 | 2845 |
| gca ctt tta cca tct ctg aaa gca gaa tac aag atg gga aga atg aga Ala Leu Leu Pro Ser Leu Lys Ala Glu Tyr Lys Met Gly Arg Met Arg 930 935 940 | 2893 |
| agt cat gga atg aca ggt gca cag aca aga ttt aca ttt gag ctg cca Ser His Gly Met Thr Gly Ala Gln Thr Arg Phe Thr Phe Glu Leu Pro 945 950 955 | 2941 |
| aat cac aga ttg cgt ttt act tca aaa gtt tct gcc aca gat atg tca Asn His Arg Leu Arg Phe Thr Ser Lys Val Ser Ala Thr Asp Met Ser 960 965 970 | 2989 |
| acc att cct cct tct gcc agt ctt aac ctt ccc cct gtt acc atg tca Thr Ile Pro Pro Ser Ala Ser Leu Asn Leu Pro Pro Val Thr Met Ser 975 980 985 990 | 3037 |
| ggg aaa tat ata atg gaa gaa cat gat agt tat tcg gat cag gtg tgg Gly Lys Tyr Ile Met Glu Glu His Asp Ser Tyr Ser Asp Gln Val Trp 995 1000 1005 | 3085 |
| agt ata gat gaa ctg cct tct aaa caa ggt tac tat tta cag gga aat Ser Ile Asp Glu Leu Pro Ser Lys Gln Gly Tyr Tyr Leu Gln Gly Asn 1010 1015 1020 | 3133 |
| tat ctg cgt tgt gtg gca gaa gtt ggt tcc ttt gaa cat aat ctt aca Tyr Leu Arg Cys Val Ala Glu Val Gly Ser Phe Glu His Asn Leu Thr 1025 1030 1035 | 3181 |
| act gat ctt cta aac cac ttg gta ttt gta cag aaa gtg ttc atg aag Thr Asp Leu Leu Asn His Leu Val Phe Val Gln Lys Val Phe Met Lys 1040 1045 1050 | 3229 |

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|---|------|
| gaa gtt aat gaa gta ata caa aaa gtt tct ggt ggg gag cag cct att | 3277 |
| Glu Val Asn Glu Val Ile Gln Lys Val Ser Gly Gly Glu Gln Pro Ile | |
| 1055 1060 1065 1070 | |
| cct ctc tgg aac gaa cat gat gga aca gca gat gga gat aaa cct aaa | 3325 |
| Pro Leu Trp Asn Glu His Asp Gly Thr Ala Asp Gly Asp Lys Pro Lys | |
| 1075 1080 1085 | |
| att ctc ctc tat tcc cta aac ttg cag ttc aag ggt att caa gta acg | 3373 |
| Ile Leu Leu Tyr Ser Leu Asn Leu Gln Phe Lys Gly Ile Gln Val Thr | |
| 1090 1095 1100 | |
| gcc act act cca tca atg aga gct gta aga ttt gaa act gga ttg att | 3421 |
| Ala Thr Thr Pro Ser Met Arg Ala Val Arg Phe Glu Thr Gly Leu Ile | |
| 1105 1110 1115 | |
| gaa ctg gaa ctt tct aac cga ctt caa acc aaa gct tca cca gga agt | 3469 |
| Glu Leu Glu Leu Ser Asn Arg Leu Gln Thr Lys Ala Ser Pro Gly Ser | |
| 1120 1125 1130 | |
| agc agc tat ctg aaa ctg ttt ggc aaa tgc cag gtg gat tta aat ctg | 3517 |
| Ser Ser Tyr Leu Lys Leu Phe Gly Lys Cys Gln Val Asp Leu Asn Leu | |
| 1135 1140 1145 1150 | |
| gca tta gga caa att gtc aaa cat cag gtt tat gag gaa gct ggt tct | 3565 |
| Ala Leu Gly Gln Ile Val Lys His Gln Val Tyr Glu Glu Ala Gly Ser | |
| 1155 1160 1165 | |
| gat ttt cat caa gtt gcc tat ttt aaa acc aga att gga tta aga aat | 3613 |
| Asp Phe His Gln Val Ala Tyr Phe Lys Thr Arg Ile Gly Leu Arg Asn | |
| 1170 1175 1180 | |
| gcc ctc cga gaa gaa atc agt ggt tct tca gat agg gaa gct gtg ctt | 3661 |
| Ala Leu Arg Glu Glu Ile Ser Gly Ser Ser Asp Arg Glu Ala Val Leu | |
| 1185 1190 1195 | |
| att act ttg aat aga cca att gtt tat gca cag cct gtg gcc ttt gat | 3709 |
| Ile Thr Leu Asn Arg Pro Ile Val Tyr Ala Gln Pro Val Ala Phe Asp | |
| 1200 1205 1210 | |
| aga gct gtg ctg ttt tgg ctg aat tat aag gct gcc tat gac aac tgg | 3757 |
| Arg Ala Val Leu Phe Trp Leu Asn Tyr Lys Ala Ala Tyr Asp Asn Trp | |
| 1215 1220 1225 1230 | |
| aat gaa caa cga atg gct tta cat aag gat att cat atg gct aca aag | 3805 |
| Asn Glu Gln Arg Met Ala Leu His Lys Asp Ile His Met Ala Thr Lys | |
| 1235 1240 1245 | |
| gaa gta gta gat atg cta cct ggt atc cag caa aca tca gcc cag gcc | 3853 |
| Glu Val Val Asp Met Leu Pro Gly Ile Gln Gln Thr Ser Ala Gln Ala | |
| 1250 1255 1260 | |
| ttt ggg act ctt ttt ctc cag ctc act gtc aat gat ctg gga att tgc | 3901 |
| Phe Gly Thr Leu Phe Leu Gln Leu Thr Val Asn Asp Leu Gly Ile Cys | |
| 1265 1270 1275 | |
| cta cct atc aca aat act gca cag tct aat cat act gga gac ctt gac | 3949 |
| Leu Pro Ile Thr Asn Thr Ala Gln Ser Asn His Thr Gly Asp Leu Asp | |
| 1280 1285 1290 | |
| act ggt tct gct ttg gta tta acc att gaa agt act ctc atc act gca | 3997 |
| Thr Gly Ser Ala Leu Val Leu Thr Ile Glu Ser Thr Leu Ile Thr Ala | |
| 1295 1300 1305 1310 | |

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|---|------|
| tgc tct tca gag tct ctg gtt agc aaa ggg cat ttc aaa aac ttt tgt Cys Ser Ser Glu Ser Leu Val Ser Lys Gly His Phe Lys Asn Phe Cys 1315 1320 1325 | 4045 |
| atc cgt ttt gct gat gga ttt gag aca tca tgg gat gac tgg aaa cca Ile Arg Phe Ala Asp Gly Phe Glu Thr Ser Trp Asp Asp Trp Lys Pro 1330 1335 1340 | 4093 |
| gaa att cat ggg gat tta gtg atg aat gcc tgt gta gtt cca gat ggc Glu Ile His Gly Asp Leu Val Met Asn Ala Cys Val Val Pro Asp Gly 1345 1350 1355 | 4141 |
| acc tat gaa gta tgt tca aga act aca gga caa gca gca gct gaa agc Thr Tyr Glu Val Cys Ser Arg Thr Thr Gly Gln Ala Ala Ala Glu Ser 1360 1365 1370 | 4189 |
| agt agt gct gga acc tgg aca ctc aac gta ttg tgg aaa atg tgt ggg Ser Ser Ala Gly Thr Trp Thr Leu Asn Val Leu Trp Lys Met Cys Gly 1375 1380 1385 1390 | 4237 |
| att gat gtt cac atg gat cct aac att ggc aaa agg ctt aat gct ctg Ile Asp Val His Met Asp Pro Asn Ile Gly Lys Arg Leu Asn Ala Leu 1395 1400 1405 | 4285 |
| ggc aat act ctt aca aca ctg aca gga gag gaa gac ata gat gac att Gly Asn Thr Leu Thr Thr Leu Thr Gly Glu Glu Asp Ile Asp Asp Ile 1410 1415 1420 | 4333 |
| gct gac tta aat tca gtg aac ata gct gac ctg tca gat gag gat gaa Ala Asp Leu Asn Ser Val Asn Ile Ala Asp Leu Ser Asp Glu Asp Glu 1425 1430 1435 | 4381 |
| gtt gat act atg tct ccc act atc cat act gaa gcc aca gat tat cga Val Asp Thr Met Ser Pro Thr Ile His Thr Glu Ala Thr Asp Tyr Arg 1440 1445 1450 | 4429 |
| aga cag gca gca tct gct agc cag ccg gga gaa ctt aga gga aga aaa Arg Gln Ala Ala Ser Ala Ser Gln Pro Gly Glu Leu Arg Gly Arg Lys 1455 1460 1465 1470 | 4477 |
| att atg aag cgt ata gtg gat atc aga gaa ctg aat gaa cag gcc aaa Ile Met Lys Arg Ile Val Asp Ile Arg Glu Leu Asn Glu Gln Ala Lys 1475 1480 1485 | 4525 |
| gta ata gat gat ctg aaa aaa tta ggt gca agt gaa gga acc ata aac Val Ile Asp Asp Leu Lys Lys Leu Gly Ala Ser Glu Gly Thr Ile Asn 1490 1495 1500 | 4573 |
| cag gaa att caa cgt tac caa cag tta gaa tct gtg gct gtg aat gac Gln Glu Ile Gln Arg Tyr Gln Gln Leu Glu Ser Val Ala Val Asn Asp 1505 1510 1515 | 4621 |
| att aga aga gat gtt cgt aaa aaa tta cgg agg tcc agt atg cgg gct Ile Arg Arg Asp Val Arg Lys Lys Leu Arg Arg Ser Ser Met Arg Ala 1520 1525 1530 | 4669 |
| gct tcc cta aag gat aag tgg ggt ttg agt tac aaa cca agt tac agc Ala Ser Leu Lys Asp Lys Trp Gly Leu Ser Tyr Lys Pro Ser Tyr Ser 1535 1540 1545 1550 | 4717 |
| cga tca aaa agc att tct gct tct gga aga cca cct ctt aag cga atg Arg Ser Lys Ser Ile Ser Ala Ser Gly Arg Pro Pro Leu Lys Arg Met 1555 1560 1565 | 4765 |

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|---|------|
| gaa agg gca agt tct cga gta gga gaa act gaa gag ctc cca gaa atc Glu Arg Ala Ser Ser Arg Val Gly Glu Thr Glu Glu Leu Pro Glu Ile 1570 1575 1580 | 4813 |
| cgt gtg gat gca gca tct cct gga cct aga gta act ttt aat atc cag Arg Val Asp Ala Ala Ser Pro Gly Pro Arg Val Thr Phe Asn Ile Gln 1585 1590 1595 | 4861 |
| gat aca ttt cca gag gag aca gaa ctg gac ctt ttg tca gta acc att Asp Thr Phe Pro Glu Glu Thr Glu Leu Asp Leu Leu Ser Val Thr Ile 1600 1605 1610 | 4909 |
| gaa ggt cca tcc cat tat tca tca aat agt gaa gga tca tgt tct gtg Glu Gly Pro Ser His Tyr Ser Ser Asn Ser Glu Gly Ser Cys Ser Val 1615 1620 1625 1630 | 4957 |
| ttc agt tct ccc aaa act cca gga ggc ttt tca cca ggc att cct ttc Phe Ser Ser Pro Lys Thr Pro Gly Gly Phe Ser Pro Gly Ile Pro Phe 1635 1640 1645 | 5005 |
| caa act gaa gag ggc cga cgg gat gac agt ttg tct tct acc agt gaa Gln Thr Glu Glu Gly Arg Arg Asp Asp Ser Leu Ser Ser Thr Ser Glu 1650 1655 1660 | 5053 |
| gat tcc gag aag gat gaa aaa gat gaa gac cat gag agg gaa agg ttt Asp Ser Glu Lys Asp Glu Lys Asp Glu Asp His Glu Arg Glu Arg Phe 1665 1670 1675 | 5101 |
| tat att tac agg aaa ccc tca cat acg tct cgt aaa aaa gca aca ggc Tyr Ile Tyr Arg Lys Pro Ser His Thr Ser Arg Lys Lys Ala Thr Gly 1680 1685 1690 | 5149 |
| ttt gct gct gtt cat cag cta ttt aca gaa cgc tgg cca aca aca cca Phe Ala Ala Val His Gln Leu Phe Thr Glu Arg Trp Pro Thr Thr Pro 1695 1700 1705 1710 | 5197 |
| gtc aat aga agt ctt agt ggc aca gct aca gag aga aat att gac ttt Val Asn Arg Ser Leu Ser Gly Thr Ala Thr Glu Arg Asn Ile Asp Phe 1715 1720 1725 | 5245 |
| gaa ctt gat ata cgg gtt gaa att gat agt gga aaa tgt gta ctc cac Glu Leu Asp Ile Arg Val Glu Ile Asp Ser Gly Lys Cys Val Leu His 1730 1735 1740 | 5293 |
| cca acc acc ctt cta caa gaa cat gat gat ata agt ttg aga agg agt Pro Thr Thr Leu Leu Gln Glu His Asp Asp Ile Ser Leu Arg Arg Ser 1745 1750 1755 | 5341 |
| tat gat cga agt tcc agg agc tta gat caa gat tca cct tca aaa aag Tyr Asp Arg Ser Ser Arg Ser Leu Asp Gln Asp Ser Pro Ser Lys Lys 1760 1765 1770 | 5389 |
| aag aag ttt caa act aat tat gct tct acc acc cat tta atg acc ggc Lys Lys Phe Gln Thr Asn Tyr Ala Ser Thr Thr His Leu Met Thr Gly 1775 1780 1785 1790 | 5437 |
| aag aaa gtg cca tca tct cta cag aca aag cct agt gac tta gaa aca Lys Lys Val Pro Ser Ser Leu Gln Thr Lys Pro Ser Asp Leu Glu Thr 1795 1800 1805 | 5485 |
| aca gta ttt tac att ccc gga gtt gat gta aag ttg cat tac aat tcc Thr Val Phe Tyr Ile Pro Gly Val Asp Val Lys Leu His Tyr Asn Ser 1810 1815 1820 | 5533 |

| | |
|---|------|
| aag acg cta aag act gaa tca cct aat gcc tcc agg gga tct tcc ttg Lys Thr Leu Lys Thr Glu Ser Pro Asn Ala Ser Arg Gly Ser Ser Leu 1825 1830 1835 | 5581 |
| cca aga aca ctg tcc aaa gag tcc aag ctg tat ggt atg aaa gat agt Pro Arg Thr Leu Ser Lys Glu Ser Lys Leu Tyr Gly Met Lys Asp Ser 1840 1845 1850 | 5629 |
| gca aca tct cct cct tct cct cct tta cct tcc act gtc cag agc aag Ala Thr Ser Pro Pro Ser Pro Pro Leu Pro Ser Thr Val Gln Ser Lys 1855 1860 1865 1870 | 5677 |
| act aac acc tta ctt cct ccc cag ccc cca cct att cct gca gcc aaa Thr Asn Thr Leu Leu Pro Pro Gln Pro Pro Pro Ile Pro Ala Ala Lys 1875 1880 1885 | 5725 |
| gga aaa gga agt gga gga gta aaa aca gcc aag tta tat gcc tgg gta Gly Lys Gly Ser Gly Gly Val Lys Thr Ala Lys Leu Tyr Ala Trp Val 1890 1895 1900 | 5773 |
| gca ctt cag tca ttg cca gaa gaa atg gtt att agt ccc tgc cta tta Ala Leu Gln Ser Leu Pro Glu Glu Met Val Ile Ser Pro Cys Leu Leu 1905 1910 1915 | 5821 |
| gac ttt ctg gaa aaa gct ctg gaa act atc cca att aca cca gtt gaa Asp Phe Leu Glu Lys Ala Leu Glu Thr Ile Pro Ile Thr Pro Val Glu 1920 1925 1930 | 5869 |
| agg aat tat aca gct gtc agc tca caa gat gaa gat atg gga cat ttt Arg Asn Tyr Thr Ala Val Ser Ser Gln Asp Glu Asp Met Gly His Phe 1935 1940 1945 1950 | 5917 |
| gaa ata cca gat cct atg gaa gaa tca aca aca tca cta gtg tcg tct Glu Ile Pro Asp Pro Met Glu Glu Ser Thr Thr Ser Leu Val Ser Ser 1955 1960 1965 | 5965 |
| tca aca tct gct tac tct tcc ttc cct gta gat gtt gtg gtt tat gta Ser Thr Ser Ala Tyr Ser Ser Phe Pro Val Asp Val Val Val Tyr Val 1970 1975 1980 | 6013 |
| cga gtt cag ccc tca cag atc aaa ttt agc tgt tta cca gta tca aga Arg Val Gln Pro Ser Gln Ile Lys Phe Ser Cys Leu Pro Val Ser Arg 1985 1990 1995 | 6061 |
| gta gaa tgc atg tta aag ctg cca tcc ctg gat ttg gtg ttt tct tca Val Glu Cys Met Leu Lys Leu Pro Ser Leu Asp Leu Val Phe Ser Ser 2000 2005 2010 | 6109 |
| aac cga gga gaa ctg gag act tta ggg act aca tat cct gca gag act Asn Arg Gly Glu Leu Glu Thr Leu Gly Thr Thr Tyr Pro Ala Glu Thr 2015 2020 2025 2030 | 6157 |
| tta tcc cct gga ggt aat gct act cag agt gga aca aag act tct gct Leu Ser Pro Gly Gly Asn Ala Thr Gln Ser Gly Thr Lys Thr Ser Ala 2035 2040 2045 | 6205 |
| agc aaa act gga ata cca ggt tca tcg gga tta ggc agc cct ctt ggc Ser Lys Thr Gly Ile Pro Gly Ser Ser Gly Leu Gly Ser Pro Leu Gly 2050 2055 2060 | 6253 |
| cga agt cga cat agt agt agt cag tca gac ctg acc agt tcc agc agt Arg Ser Arg His Ser Ser Ser Gln Ser Asp Leu Thr Ser Ser Ser Ser 2065 2070 2075 | 6301 |

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|---|------|
| agt tca tct ggc ttg agc ttc act gca tgc atg tct gac ttt tcc ctt Ser Ser Ser Gly Leu Ser Phe Thr Ala Cys Met Ser Asp Phe Ser Leu 2080 2085 2090 | 6349 |
| tat gta ttt cat cca tat gga gca ggg aaa caa aaa act gct gtt tct Tyr Val Phe His Pro Tyr Gly Ala Gly Lys Gln Lys Thr Ala Val Ser 2095 2100 2105 2110 | 6397 |
| ggc ctc aca cct gga tca gga gga tta ggg aat gtg gat gag gag ccc Gly Leu Thr Pro Gly Ser Gly Gly Leu Gly Asn Val Asp Glu Glu Pro 2115 2120 2125 | 6445 |
| act tca gtc act ggt cga aaa gat tca ctc agt ata aac ctt gag ttt Thr Ser Val Thr Gly Arg Lys Asp Ser Leu Ser Ile Asn Leu Glu Phe 2130 2135 2140 | 6493 |
| gta aaa gtg agt ttg tca cgg atc agg cgt tca gga ggt gcc tca ttt Val Lys Val Ser Leu Ser Arg Ile Arg Arg Ser Gly Gly Ala Ser Phe 2145 2150 2155 | 6541 |
| ttt gaa agt cag tct gta agc aag tct gca agc aaa atg gat act acg Phe Glu Ser Gln Ser Val Ser Lys Ser Ala Ser Lys Met Asp Thr Thr 2160 2165 2170 | 6589 |
| tta ata aat ata tct gct gtt tgt gat ata ggg tct gcc tcc ttt aaa Leu Ile Asn Ile Ser Ala Val Cys Asp Ile Gly Ser Ala Ser Phe Lys 2175 2180 2185 2190 | 6637 |
| tat gat atg cgc cga ctc agt gaa att ctg gca ttt cca aga gca tgg Tyr Asp Met Arg Arg Leu Ser Glu Ile Leu Ala Phe Pro Arg Ala Trp 2195 2200 2205 | 6685 |
| tat aga aga agt att gca aga cgt cta ttc ctt gga gac caa act ata Tyr Arg Arg Ser Ile Ala Arg Arg Leu Phe Leu Gly Asp Gln Thr Ile 2210 2215 2220 | 6733 |
| aat ttg cca aca tct ggc cca ggg aca cct gat tcc att gaa ggg gta Asn Leu Pro Thr Ser Gly Pro Gly Thr Pro Asp Ser Ile Glu Gly Val 2225 2230 2235 | 6781 |
| agc caa cac ctt tcc cct gaa tca tca aga aaa gct tac tgc aag acc Ser Gln His Leu Ser Pro Glu Ser Ser Arg Lys Ala Tyr Cys Lys Thr 2240 2245 2250 | 6829 |
| tgg gag cag cca agt cag tca gcc tcc ttc acc cac atg cct cag tca Trp Glu Gln Pro Ser Gln Ser Ala Ser Phe Thr His Met Pro Gln Ser 2255 2260 2265 2270 | 6877 |
| cct aat gtg ttc aat gag cat atg aca aac agc acc atg tca cca ggg Pro Asn Val Phe Asn Glu His Met Thr Asn Ser Thr Met Ser Pro Gly 2275 2280 2285 | 6925 |
| aca gta gga cag agc cta aaa tcc cca gct tcc ata aga tca agg agt Thr Val Gly Gln Ser Leu Lys Ser Pro Ala Ser Ile Arg Ser Arg Ser 2290 2295 2300 | 6973 |
| gta tct gat tct tca gtt cct cga aga gat tca ctt tca aaa aca tca Val Ser Asp Ser Ser Val Pro Arg Arg Asp Ser Leu Ser Lys Thr Ser 2305 2310 2315 | 7021 |
| act cct ttt aac aaa tca aac aaa gca gca agc caa caa ggg acc cca Thr Pro Phe Asn Lys Ser Asn Lys Ala Ala Ser Gln Gln Gly Thr Pro 2320 2325 2330 | 7069 |

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|---|------|
| tgg gaa aca ctt gtc gtg ttt gct atc aac ttg aag caa tta aac gtt | 7117 |
| Trp Glu Thr Leu Val Val Phe Ala Ile Asn Leu Lys Gln Leu Asn Val | |
| 2335 2340 2345 2350 | |
| caa atg aat atg agt aat gta atg gga aat aca act tgg aca act agt | 7165 |
| Gln Met Asn Met Ser Asn Val Met Gly Asn Thr Thr Trp Thr Thr Ser | |
| 2355 2360 2365 | |
| ggg ttg aag agc cag ggc cgt ctg tca gta gga agt aat cgt gat cga | 7213 |
| Gly Leu Lys Ser Gln Gly Arg Leu Ser Val Gly Ser Asn Arg Asp Arg | |
| 2370 2375 2380 | |
| gag atc agc atg tct gtt ggt ctg gga aga tca caa tta gat tct aaa | 7261 |
| Glu Ile Ser Met Ser Val Gly Leu Gly Arg Ser Gln Leu Asp Ser Lys | |
| 2385 2390 2395 | |
| gga gga gta gtt gga ggg acc ata gat gtc aat gct ttg gag atg gtt | 7309 |
| Gly Gly Val Val Gly Gly Thr Ile Asp Val Asn Ala Leu Glu Met Val | |
| 2400 2405 2410 | |
| gct cat att tct gaa cat cca aat cag caa ccc agt cac aaa att cag | 7357 |
| Ala His Ile Ser Glu His Pro Asn Gln Gln Pro Ser His Lys Ile Gln | |
| 2415 2420 2425 2430 | |
| att act atg ggt tct act gaa gct cgt gtt gat tac atg ggc tca agt | 7405 |
| Ile Thr Met Gly Ser Thr Glu Ala Arg Val Asp Tyr Met Gly Ser Ser | |
| 2435 2440 2445 | |
| atc ctc atg ggc atc ttc agt aat gct gat ctt aag ctt cag gat gaa | 7453 |
| Ile Leu Met Gly Ile Phe Ser Asn Ala Asp Leu Lys Leu Gln Asp Glu | |
| 2450 2455 2460 | |
| tgg aaa gta aac ttg tat aat aca ttg gat tca agc ata act gat aaa | 7501 |
| Trp Lys Val Asn Leu Tyr Asn Thr Leu Asp Ser Ser Ile Thr Asp Lys | |
| 2465 2470 2475 | |
| agt gag att ttc gtc cat gga gat ttg aag tgg gat att ttc caa gta | 7549 |
| Ser Glu Ile Phe Val His Gly Asp Leu Lys Trp Asp Ile Phe Gln Val | |
| 2480 2485 2490 | |
| atg ata tca agg tca acc aca cca gat ctg ata aaa ata gga atg aag | 7597 |
| Met Ile Ser Arg Ser Thr Thr Pro Asp Leu Ile Lys Ile Gly Met Lys | |
| 2495 2500 2505 2510 | |
| ctc cag gaa ttt ttc aca caa caa ttt gat acc agc aaa cga gct ctg | 7645 |
| Leu Gln Glu Phe Phe Thr Gln Gln Phe Asp Thr Ser Lys Arg Ala Leu | |
| 2515 2520 2525 | |
| tct acc tgg gga cca gtt cct tac ctt ccg cca aag aca atg act agc | 7693 |
| Ser Thr Trp Gly Pro Val Pro Tyr Leu Pro Pro Lys Thr Met Thr Ser | |
| 2530 2535 2540 | |
| aac cta gaa aaa agt tca caa gaa caa tta ctt gat gca gca cat cat | 7741 |
| Asn Leu Glu Lys Ser Ser Gln Glu Gln Leu Leu Asp Ala Ala His His | |
| 2545 2550 2555 | |
| cga cac tgg cct gga gta ttg aag gtg gta tca gga tgc cac ata tcc | 7789 |
| Arg His Trp Pro Gly Val Leu Lys Val Val Ser Gly Cys His Ile Ser | |
| 2560 2565 2570 | |
| tta ttt cag att cca tta cca gaa gat gga atg caa ttt gga gga tca | 7837 |
| Leu Phe Gln Ile Pro Leu Pro Glu Asp Gly Met Gln Phe Gly Gly Ser | |
| 2575 2580 2585 2590 | |

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|---|------|
| atg agc tta cat gga aat cat atg aca ctg gca tgt ttt cat ggt cca Met Ser Leu His Gly Asn His Met Thr Leu Ala Cys Phe His Gly Pro 2595 2600 2605 | 7885 |
| aat ttt cgt tca aaa tct tgg gcc ctt ttt cat tta gaa gaa cca aat Asn Phe Arg Ser Lys Ser Trp Ala Leu Phe His Leu Glu Glu Pro Asn 2610 2615 2620 | 7933 |
| att gct ttt tgg act gaa gct cag aaa atc tgg gaa gat ggc tcc agt Ile Ala Phe Trp Thr Glu Ala Gln Lys Ile Trp Glu Asp Gly Ser Ser 2625 2630 2635 | 7981 |
| gat cat tct aca tat att gta caa aca cta gat ttt cac ctg ggt cat Asp His Ser Thr Tyr Ile Val Gln Thr Leu Asp Phe His Leu Gly His 2640 2645 2650 | 8029 |
| aat act atg gtt acc aaa cca tgt ggt gct ttg gaa agt cct atg gca Asn Thr Met Val Thr Lys Pro Cys Gly Ala Leu Glu Ser Pro Met Ala 2655 2660 2665 2670 | 8077 |
| aca ata acc aag ata aca agg cgt cgc cat gaa aat cca ccc cat gga Thr Ile Thr Lys Ile Thr Arg Arg Arg His Glu Asn Pro Pro His Gly 2675 2680 2685 | 8125 |
| gta gca agt gtg aaa gaa tgg ttc aat tat gtt aca gct aca agg aat Val Ala Ser Val Lys Glu Trp Phe Asn Tyr Val Thr Ala Thr Arg Asn 2690 2695 2700 | 8173 |
| gaa gag cta aat ctg ctt cgt aat gtt gat gct aac aac act gag aat Glu Glu Leu Asn Leu Leu Arg Asn Val Asp Ala Asn Asn Thr Glu Asn 2705 2710 2715 | 8221 |
| agc act act gtg aag aat tct agt ttg ttg agt gga ttc aga gga ggt Ser Thr Thr Val Lys Asn Ser Ser Leu Leu Ser Gly Phe Arg Gly Gly 2720 2725 2730 | 8269 |
| tct agc tac aac cat gaa aca gag act atc ttt gca tta cca agg atg Ser Ser Tyr Asn His Glu Thr Glu Thr Ile Phe Ala Leu Pro Arg Met 2735 2740 2745 2750 | 8317 |
| cag ctt gac ttt aaa tcc att cat gtt caa gaa cca cag gag cct tca Gln Leu Asp Phe Lys Ser Ile His Val Gln Glu Pro Gln Glu Pro Ser 2755 2760 2765 | 8365 |
| tta cag gat gcc agc ctg aag cca aaa gta gaa tgt agt gtg gtg aca Leu Gln Asp Ala Ser Leu Lys Pro Lys Val Glu Cys Ser Val Val Thr 2770 2775 2780 | 8413 |
| gag ttc act gac cac att tgt gtg act atg gat gct gag ctc atc atg Glu Phe Thr Asp His Ile Cys Val Thr Met Asp Ala Glu Leu Ile Met 2785 2790 2795 | 8461 |
| ttt ctt cat gat tta gta tca gct tat ctt aaa gaa aaa gaa aaa gcc Phe Leu His Asp Leu Val Ser Ala Tyr Leu Lys Glu Lys Glu Lys Ala 2800 2805 2810 | 8509 |
| atc ttt cca cct cgg att tta tct act cga cca gga caa aaa agt cca Ile Phe Pro Pro Arg Ile Leu Ser Thr Arg Pro Gly Gln Lys Ser Pro 2815 2820 2825 2830 | 8557 |
| att att ata cat gac gac aat tcc tct gat aaa gat aga gaa gat agc Ile Ile Ile His Asp Asp Asn Ser Ser Asp Lys Asp Arg Glu Asp Ser 2835 2840 2845 | 8605 |

atc act tat act act gtg gac tgg aga gat ttt atg tgc aat aca tgg 8653
 Ile Thr Tyr Thr Thr Val Asp Trp Arg Asp Phe Met Cys Asn Thr Trp
 2850 2855 2860

 cat cta gaa cct act ctt aga tta att tct tgg act gga aga aag att 8701
 His Leu Glu Pro Thr Leu Arg Leu Ile Ser Trp Thr Gly Arg Lys Ile
 2865 2870 2875

 gat cca gta ggt gtt gat tat att ctt caa aaa ttg ggc ttt cat cat 8749
 Asp Pro Val Gly Val Asp Tyr Ile Leu Gln Lys Leu Gly Phe His His
 2880 2885 2890

 gct agg act act att cct aaa tgg ctt caa aga gga gtc atg gat cca 8797
 Ala Arg Thr Thr Ile Pro Lys Trp Leu Gln Arg Gly Val Met Asp Pro
 2895 2900 2905 2910

 ctg gac aag gtt ctg tca gtt ctt atc aaa aag ctc ggt act gca cta 8845
 Leu Asp Lys Val Leu Ser Val Leu Ile Lys Lys Leu Gly Thr Ala Leu
 2915 2920 2925

 cag gat gaa aag gaa aag aaa ggc aaa gac aaa gaa gaa cac taa aaa 8893
 Gln Asp Glu Lys Glu Lys Lys Gly Lys Asp Lys Glu Glu His *
 2930 2935 2940

 agtaatttga tctgtgaaca aattatgatt gtgtctgttt tattacactg gagtggtttt 8953
 ttagtataat aatttgaaat ataacttta aataattcta aatttgtggc tataattaaa 9013
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 aatgtaaatt ttgtgaaaaa ctagattaaa atatataact gcttggttatg gtttataatt 9133
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 ggggaggtca ttaattgctt tttctttttt aaatgtagac ttatataaat acctgtttgt 9313
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 tct aac cta atg gtc tgc aac ctg gcc tac agc ggg aag ctg gaa gag 102
 Ser Asn Leu Met Val Cys Asn Leu Ala Tyr Ser Gly Lys Leu Glu Glu
 10 15 20

| | |
|---|-----|
| ttg aag gag agt att ctg gcc gat aaa tcc ctg gct act aga act gac | 150 |
| Leu Lys Glu Ser Ile Leu Ala Asp Lys Ser Leu Ala Thr Arg Thr Asp | |
| 25 30 35 | |
| cag gca ggt tgg tct cct ctt cat att gcg gct tct gct ggc cgg gat | 198 |
| Gln Ala Gly Trp Ser Pro Leu His Ile Ala Ala Ser Ala Gly Arg Asp | |
| 40 45 50 | |
| gag att gta aaa gcc ctt ctg gga aaa ggt gct caa gtg aat gct gtc | 246 |
| Glu Ile Val Lys Ala Leu Leu Gly Lys Gly Ala Gln Val Asn Ala Val | |
| 55 60 65 | |
| aat caa aat ggc tgt act ccc tta cat tat gca gct tcg aaa aac agg | 294 |
| Asn Gln Asn Gly Cys Thr Pro Leu His Tyr Ala Ala Ser Lys Asn Arg | |
| 70 75 80 85 | |
| cat gag atc gct gtc atg tta ctg gaa ggc ggg gct aat cca gat gct | 342 |
| His Glu Ile Ala Val Met Leu Leu Glu Gly Gly Ala Asn Pro Asp Ala | |
| 90 95 100 | |
| aag gac cat tat gag gct aca gca atg cac cgg gca gca gcc aag ggt | 390 |
| Lys Asp His Tyr Glu Ala Thr Ala Met His Arg Ala Ala Ala Lys Gly | |
| 105 110 115 | |
| aac ttg aag atg att cat atc ctt ctg tac tac aaa gca tcc aca aac | 438 |
| Asn Leu Lys Met Ile His Ile Leu Leu Tyr Tyr Lys Ala Ser Thr Asn | |
| 120 125 130 | |
| atc caa gac act gag ggt aac act cct cta cac tta gcc tgt gat gag | 486 |
| Ile Gln Asp Thr Glu Gly Asn Thr Pro Leu His Leu Ala Cys Asp Glu | |
| 135 140 145 | |
| gag aga gtg gaa gaa gca aaa ctg ctg gtg tcc caa gga gca agt att | 534 |
| Glu Arg Val Glu Glu Ala Lys Leu Leu Val Ser Gln Gly Ala Ser Ile | |
| 150 155 160 165 | |
| tac att gag aat aaa gaa gaa aag aca ccc ctg caa gtg gcc aaa ggt | 582 |
| Tyr Ile Glu Asn Lys Glu Glu Lys Thr Pro Leu Gln Val Ala Lys Gly | |
| 170 175 180 | |
| ggc ctg ggt tta ata ctc aag aga atg gtg gaa ggt taa | 621 |
| Gly Leu Gly Leu Ile Leu Lys Arg Met Val Glu Gly * | |
| 185 190 | |

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2338

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1128

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 Met Gly Ala Tyr Lys Tyr Ile Gln
 1 5

gag cta tgg aga aag aag cag tct gat gtc atg cgc ttt ctt ctg agg 161
 Glu Leu Trp Arg Lys Lys Gln Ser Asp Val Met Arg Phe Leu Leu Arg
 10 15 20

gtc cgc tgc tgg cag tac cgc cag ctc tct gct ctc cac agg gct ccc 209
 Val Arg Cys Trp Gln Tyr Arg Gln Leu Ser Ala Leu His Arg Ala Pro
 25 30 35 40

cgc ccc acc cgg cct gat aaa gcg cgc cga ctg ggc tac aag gcc aag 257
 Arg Pro Thr Arg Pro Asp Lys Ala Arg Arg Leu Gly Tyr Lys Ala Lys
 45 50 55

caa ggt tac gtt ata tat agg att cgt gtt cgc cgt ggt ggc cga aaa 305
 Gln Gly Tyr Val Ile Tyr Arg Ile Arg Val Arg Arg Gly Gly Arg Lys
 60 65 70

cgc cca gtt cct aag ggt gca act tac ggc aag cct gtc cat cat ggt 353
 Arg Pro Val Pro Lys Gly Ala Thr Tyr Gly Lys Pro Val His His Gly
 75 80 85

gtt aac cag cta aag ttt gct cga agc ctt cag tcc gtt gca gag gag 401
 Val Asn Gln Leu Lys Phe Ala Arg Ser Leu Gln Ser Val Ala Glu Glu
 90 95 100

cga gct gga cgc cac tgt ggg gct ctg aga gtc ctg aat tct tac tgg 449
 Arg Ala Gly Arg His Cys Gly Ala Leu Arg Val Leu Asn Ser Tyr Trp
 105 110 115 120

gtt ggt gaa gat tcc aca tac aaa ttt ttt gag gtt atc ctc att gat 497
 Val Gly Glu Asp Ser Thr Tyr Lys Phe Phe Glu Val Ile Leu Ile Asp
 125 130 135

cca ttc cat aaa gct atc aga aga aat cct gac acc cag tgg atc acc 545
 Pro Phe His Lys Ala Ile Arg Arg Asn Pro Asp Thr Gln Trp Ile Thr
 140 145 150

aaa cca gtc cac aag cac agg gag atg cgt ggg ctg aca tct gca ggc 593
 Lys Pro Val His Lys His Arg Glu Met Arg Gly Leu Thr Ser Ala Gly

| | | | |
|--|-----|-----|-----|
| 155 | 160 | 165 | |
| cga aag agc cat ggg ctt gga aag gac cgt atg ttc cac cat gct att | | | 641 |
| Arg Lys Ser His Gly Leu Gly Lys Asp Arg Met Phe His His Ala Ile | | | |
| 170 | 175 | 180 | |
| ggg ggt tct tgc cgg gca gct tag agaaggcgca aaactctcca gttccctgt | | | 695 |
| Gly Gly Ser Cys Arg Ala Ala * | | | |
| 185 | 190 | | |
| taccactaat ataagtaaag tttgtaaaat tcatgcctca taatttaggg cagtcaaaaa | | | 755 |
| aataaataaa taagctatatt taatattttt attctccttc aagggaccag aggccacaaa | | | 815 |
| agtcttgtag actatgtgtc cccagtaaag gacacataga atgnccggac gcgggggtcgc | | | 875 |
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| <221> CDS | | | |
| <222> (131)..(1894) | | | |
| | | | |
| <400> 843 | | | |
| ggcgtgatgt atataactat ctattcgatg atgaagatac cccaccaaac ccaaaaaaag | | | 60 |
| agatctctcg aggatccgaa ttcgcggccg cgtccgactg gacctctggc agcagcttca | | | 120 |
| ctaagggtggg atg gat agc agg gtc tca ggc aca acc agt aat gga gag | | | 169 |
| Met Asp Ser Arg Val Ser Gly Thr Thr Ser Asn Gly Glu | | | |
| 1 5 10 | | | |
| aca aaa cca gtg tat cca gtc atg gaa aag aag gag gaa gat ggc acc | | | 217 |
| Thr Lys Pro Val Tyr Pro Val Met Glu Lys Lys Glu Glu Asp Gly Thr | | | |
| 15 20 25 | | | |
| ctg gag cgg ggg cac tgg aac aac aag atg gag ttt gtg ctg tca gtg | | | 265 |
| Leu Glu Arg Gly His Trp Asn Asn Lys Met Glu Phe Val Leu Ser Val | | | |
| 30 35 40 45 | | | |
| gct ggg gag atc att ggc tta ggc aac gtc tgg agg ttt ccc tat ctc | | | 313 |
| Ala Gly Glu Ile Ile Gly Leu Gly Asn Val Trp Arg Phe Pro Tyr Leu | | | |
| 50 55 60 | | | |
| tgc tac aaa aat ggg gga ggt gcc ttc ttc atc ccc tac ctc gtc ttc | | | 361 |
| Cys Tyr Lys Asn Gly Gly Gly Ala Phe Phe Ile Pro Tyr Leu Val Phe | | | |
| 65 70 75 | | | |
| ctc ttt acc tgt ggc att cct gtc ttc ctt ctg gag aca gca cta ggc | | | 409 |
| Leu Phe Thr Cys Gly Ile Pro Val Phe Leu Leu Glu Thr Ala Leu Gly | | | |
| 80 85 90 | | | |
| cag tac act agc cag gga ggc gtc aca gcc tgg agg aag atc tgc ccc | | | 457 |
| Gln Tyr Thr Ser Gln Gly Gly Val Thr Ala Trp Arg Lys Ile Cys Pro | | | |
| 95 100 105 | | | |
| atc ttt gag ggc att ggc tat gcc tcc cag atg atc gtc atc ctc ctc | | | 505 |

| | |
|---|------|
| Ile Phe Glu Gly Ile Gly Tyr Ala Ser Gln Met Ile Val Ile Leu Leu 110 115 120 125 | |
| aac gtc tac tac atc att gtg ttg gcc tgg gcc ctg ttc tac ctc ttc Asn Val Tyr Tyr Ile Ile Val Leu Ala Trp Ala Leu Phe Tyr Leu Phe 130 135 140 | 553 |
| agc agc ttc acc atc gac ctg ccc tgg ggc ggc tgc tac cat gag tgg Ser Ser Phe Thr Ile Asp Leu Pro Trp Gly Gly Cys Tyr His Glu Trp 145 150 155 | 601 |
| aac aca gaa cac tgt atg gag ttc cag aag acc aac ggc tcc ctg aat Asn Thr Glu His Cys Met Glu Phe Gln Lys Thr Asn Gly Ser Leu Asn 160 165 170 | 649 |
| ggc acc tct gag aat gcc acc tct cct gtc atc gag ttc tgg gag cgg Gly Thr Ser Glu Asn Ala Thr Ser Pro Val Ile Glu Phe Trp Glu Arg 175 180 185 | 697 |
| cgg gtc ttg aag atc tct gat ggg atc cag cac ctg ggg gcc ctg cgc Arg Val Leu Lys Ile Ser Asp Gly Ile Gln His Leu Gly Ala Leu Arg 190 195 200 205 | 745 |
| tgg gag ctg gct ctg tgc ctc ctg ctg gcc tgg gtc atc tgc tac ttc Trp Glu Leu Ala Leu Cys Leu Leu Leu Ala Trp Val Ile Cys Tyr Phe 210 215 220 | 793 |
| tgc atc tgg aag ggg gtg aag tcc aca ggc aag gtg gtg tac ttc acg Cys Ile Trp Lys Gly Val Lys Ser Thr Gly Lys Val Val Tyr Phe Thr 225 230 235 | 841 |
| gcc aca ttt cct tac ctc atg ctg gtg gtc ctg tta att cga ggg gtg Ala Thr Phe Pro Tyr Leu Met Leu Val Val Leu Leu Ile Arg Gly Val 240 245 250 | 889 |
| acg ttg cct ggg gca gcc caa gga att cag ttt tac ctg tac cca aac Thr Leu Pro Gly Ala Ala Gln Gly Ile Gln Phe Tyr Leu Tyr Pro Asn 255 260 265 | 937 |
| ctc acg cgt ctg tgg gat ccc cag gtg tgg atg gat gca ggc acc cag Leu Thr Arg Leu Trp Asp Pro Gln Val Trp Met Asp Ala Gly Thr Gln 270 275 280 285 | 985 |
| ata ttc ttc tcc ttc gcc atc tgt ctt ggg tgc ctg aca gcc ctg ggc Ile Phe Phe Ser Phe Ala Ile Cys Leu Gly Cys Leu Thr Ala Leu Gly 290 295 300 | 1033 |
| agc tac aac aag tac cac aac aac tgc tac agc ggc acc agc ttt gtg Ser Tyr Asn Lys Tyr His Asn Asn Cys Tyr Ser Gly Thr Ser Phe Val 305 310 315 | 1081 |
| gcc ggc ttt gcc atc ttc tcc atc ctg ggc ttc atg tct cag gag cag Ala Gly Phe Ala Ile Phe Ser Ile Leu Gly Phe Met Ser Gln Glu Gln 320 325 330 | 1129 |
| ggg gtg ccc att tct gag gtg gcc gag tca ggc cct ggc ctg gct ttc Gly Val Pro Ile Ser Glu Val Ala Glu Ser Gly Pro Gly Leu Ala Phe 335 340 345 | 1177 |
| atc gct tac ccg cgg gct gtg gtg atg ctg ccc ttc tct cct ctc tgg Ile Ala Tyr Pro Arg Ala Val Val Met Leu Pro Phe Ser Pro Leu Trp 350 355 360 365 | 1225 |
| gcc tgc tgt ttc ttc ttc atg gtc gtt ctc ctg gga ctg gat agc cag | 1273 |

| | |
|--|------|
| Ala Cys Cys Phe Phe Phe Met Val Val Leu Leu Gly Leu Asp Ser Gln | |
| 370 375 380 | |
| ttt gtg tgt gta gaa agc ctg gtg aca gcg ctg gtg gac atg tac cct | 1321 |
| Phe Val Cys Val Glu Ser Leu Val Thr Ala Leu Val Asp Met Tyr Pro | |
| 385 390 395 | |
| cac gtg ttc cgc aag aag aac cgg agg gaa gtc ctc atc ctt gga gta | 1369 |
| His Val Phe Arg Lys Lys Asn Arg Arg Glu Val Leu Ile Leu Gly Val | |
| 400 405 410 | |
| tct gtc gtc tcc ttc cct gtg ggg ctg atc atg ctc aca gag ggc gga | 1417 |
| Ser Val Val Ser Phe Pro Val Gly Leu Ile Met Leu Thr Glu Gly Gly | |
| 415 420 425 | |
| atg tac gtg ttc cag ctc ttt gac tac tat gcg gcc agt ggc atg tgc | 1465 |
| Met Tyr Val Phe Gln Leu Phe Asp Tyr Tyr Ala Ala Ser Gly Met Cys | |
| 430 435 440 445 | |
| ctc ctg ttc gtg gcc atc ttc gag tcc ctc tgt gtg gct tgg gtt tac | 1513 |
| Leu Leu Phe Val Ala Ile Phe Glu Ser Leu Cys Val Ala Trp Val Tyr | |
| 450 455 460 | |
| gga gcc aag cgc ttc tac gac aac atc gaa gac atg att ggg tac agg | 1561 |
| Gly Ala Lys Arg Phe Tyr Asp Asn Ile Glu Asp Met Ile Gly Tyr Arg | |
| 465 470 475 | |
| cca tgg cct ctt atc aaa tac tgt tgg ctc ttc ctc aca cca gct gtg | 1609 |
| Pro Trp Pro Leu Ile Lys Tyr Cys Trp Leu Phe Leu Thr Pro Ala Val | |
| 480 485 490 | |
| tgc aca gcc acc ttt ctc ttc tcc ctg ata aag tac act ccg ctg acc | 1657 |
| Cys Thr Ala Thr Phe Leu Phe Ser Leu Ile Lys Tyr Thr Pro Leu Thr | |
| 495 500 505 | |
| tac aac aag aag tac acg tac ccg tgg tgg ggc gat gcc ctg ggc tgg | 1705 |
| Tyr Asn Lys Lys Tyr Thr Tyr Pro Trp Trp Gly Asp Ala Leu Gly Trp | |
| 510 515 520 525 | |
| ctc ctg gct ctg tcc tcc tgg tct gca ttc ctg cct gga gcc tct aca | 1753 |
| Leu Leu Ala Leu Ser Ser Trp Ser Ala Phe Leu Pro Gly Ala Ser Thr | |
| 530 535 540 | |
| gac tcg gaa ccc tca agg gcc cct tca gag aga gaa tcc gtc agc tca | 1801 |
| Asp Ser Glu Pro Ser Arg Ala Pro Ser Glu Arg Glu Ser Val Ser Ser | |
| 545 550 555 | |
| tgt gcc cag ccg agg acc tgc ccc agc gga acc cag cag gac cct cgg | 1849 |
| Cys Ala Gln Pro Arg Thr Cys Pro Ser Gly Thr Gln Gln Asp Pro Arg | |
| 560 565 570 | |
| ctc ccg cca ccc cca gga cct cac tgc tca gac tca cag agc tag agt | 1897 |
| Leu Pro Pro Pro Pro Gly Pro His Cys Ser Asp Ser Gln Ser * | |
| 575 580 585 | |
| ctcactgcta gggggcaggc ccttgatgg tgccgtgtgtg cctggccttg gggatggctg | 1957 |
| tgaggaggaaac gtggcagaag cagcccatg tgttcctgc ccccgacctg gaggatgataa | 2017 |
| gacaagaggg gtatatttgga gtccacctgc tgagctggag gcctccact gcaacttttc | 2077 |
| agctcagggg ttgttgaaca gatgtgaaaa ggccagtgcc aagagtgtcc ctcggagacc | 2137 |
| cttgaaggc | 2146 |

<210> 844
 <211> 930
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (39)..(593)

<400> 844
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 Met Ala Pro Leu Leu
 1 5

ccc atc cgg acc ttg ccc ttg atc ctg att ctg ctg gct ctg ctg tcc 101
 Pro Ile Arg Thr Leu Pro Leu Ile Leu Ile Leu Leu Ala Leu Leu Ser
 10 15 20

cca ggg gct gca gac ttc aac atc tca agc ctc tct ggt ctg ctg tcc 149
 Pro Gly Ala Ala Asp Phe Asn Ile Ser Ser Leu Ser Gly Leu Leu Ser
 25 30 35

ccg gcg cta acg gag agc ctg ctg gtt gcc ttg ccc ccc tgt cac ctc 197
 Pro Ala Leu Thr Glu Ser Leu Leu Val Ala Leu Pro Pro Cys His Leu
 40 45 50

aca gga ggc aat gcc aca ctg atg gtc cgg aga gcc aat gac agc aaa 245
 Thr Gly Gly Asn Ala Thr Leu Met Val Arg Arg Ala Asn Asp Ser Lys
 55 60 65

gtg gtg acg tcc agc ttt gtg gtg cct ccg tgc cgt ggg cgc agg gaa 293
 Val Val Thr Ser Ser Phe Val Val Pro Pro Cys Arg Gly Arg Arg Glu
 70 75 80 85

ctg gtg agt gtg gtg gac agt ggt gct ggc ttc aca gtc act cgg ctc 341
 Leu Val Ser Val Val Asp Ser Gly Ala Gly Phe Thr Val Thr Arg Leu
 90 95 100

agt gca tac cag gtg aca aac ctc gtg cca gga acc aaa ttc tac att 389
 Ser Ala Tyr Gln Val Thr Asn Leu Val Pro Gly Thr Lys Phe Tyr Ile
 105 110 115

tcc tac cta gtg aag aag ggg aca gcc act gag tcc agc aga gag atc 437
 Ser Tyr Leu Val Lys Lys Gly Thr Ala Thr Glu Ser Ser Arg Glu Ile
 120 125 130

cca atg tcc aca ctc cct cga agg aac atg gaa tcc att ggg ctg ggt 485
 Pro Met Ser Thr Leu Pro Arg Arg Asn Met Glu Ser Ile Gly Leu Gly
 135 140 145

atg gcc cgc aca ggg ggc atg gtg gtc atc acg gtg ctg ctc tct gtc 533
 Met Ala Arg Thr Gly Gly Met Val Val Ile Thr Val Leu Leu Ser Val
 150 155 160 165

gcc atg ttc ctg ctg gtg ctg ggc ttc atc att gcc ctg gca ctg ggc 581
 Ala Met Phe Leu Leu Val Leu Gly Phe Ile Ile Ala Leu Ala Leu Gly
 170 175 180

tcc cgc aag taa gga ggtctgcccc gagcagcagc ttctccagga agcccagggc 636
 Ser Arg Lys *

185

accatccagc tccccagccc acctgctccc aggccccagg cctgtggctc ccttggtgcc 696
 ctgcctcct cctcctgccc tctctcccc tagagccctc tctccctctc gtccctctcc 756
 ttgccccagc tgcctcacct tccaacactc cattattcct ctcacccac tctgtcaga 816
 gttgactttc ctcccatttt accactttaa acacccccat aacaattccc ccatacttca 876
 gtgaactaag tccctataat aaaggctgag gctgcatctg ccaaaaaaaaa aaaa 930

<210> 845
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 <213> Homo sapiens

<220>
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 <222> (68)..(1645)

<400> 845

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 gcgtccg atg gcg gct gtg gtg ctg gcg gcg acg cgg ttg ctg cgg ggc 109
 Met Ala Ala Val Val Leu Ala Ala Thr Arg Leu Leu Arg Gly
 1 5 10
 tcg ggt tct tgg ggc tgt tcg cgg ctg agg ttt gga cct cct gcg tat 157
 Ser Gly Ser Trp Gly Cys Ser Arg Leu Arg Phe Gly Pro Pro Ala Tyr
 15 20 25 30
 aga cgg ttt agt agt ggt ggt gcc tat ccc aac atc ccc ctc tct tct 205
 Arg Arg Phe Ser Ser Gly Gly Ala Tyr Pro Asn Ile Pro Leu Ser Ser
 35 40 45
 ccc tta cct gga gta ccc aag cct gtt ttt gct aca gtt gat gga cag 253
 Pro Leu Pro Gly Val Pro Lys Pro Val Phe Ala Thr Val Asp Gly Gln
 50 55 60
 gaa aag ttt gaa acc aaa gta acc aca ttg gat aat ggg ctt cgc gtg 301
 Glu Lys Phe Glu Thr Lys Val Thr Thr Leu Asp Asn Gly Leu Arg Val
 65 70 75
 gca tct cag aat aag ttt gga cag ttt tgt aca gta gga att ctt atc 349
 Ala Ser Gln Asn Lys Phe Gly Gln Phe Cys Thr Val Gly Ile Leu Ile
 80 85 90
 aat tca gga tcg aga tat gaa gcg aaa tac ctt agt gga att gct cac 397
 Asn Ser Gly Ser Arg Tyr Glu Ala Lys Tyr Leu Ser Gly Ile Ala His
 95 100 105 110
 ttt ttg gaa aaa ttg gca ttt tcg tct act gct cga ttt gac agc aaa 445
 Phe Leu Glu Lys Leu Ala Phe Ser Ser Thr Ala Arg Phe Asp Ser Lys
 115 120 125
 gat gaa att ctg ctt acg ttg gaa aag cat ggg ggt atc tgt gac tgc 493
 Asp Glu Ile Leu Leu Thr Leu Glu Lys His Gly Gly Ile Cys Asp Cys
 130 135 140
 cag aca tca aga gac acc acc atg tat gct gtg tct gct gat agc aaa 541

| | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| Gln | Thr | Ser | Arg | Asp | Thr | Thr | Met | Tyr | Ala | Val | Ser | Ala | Asp | Ser | Lys | |
| | | 145 | | | | | 150 | | | | | 155 | | | | |
| ggc | ttg | gac | acg | gtg | gtt | gcc | tta | ctg | gct | gat | gtg | gtt | ctg | cag | ccc | 589 |
| Gly | Leu | Asp | Thr | Val | Val | Ala | Leu | Leu | Ala | Asp | Val | Val | Leu | Gln | Pro | |
| | 160 | | | | | 165 | | | | | 170 | | | | | |
| cgg | cta | aca | gat | gaa | gaa | gtc | gag | atg | acg | cgg | atg | gcg | gtc | cag | ttt | 637 |
| Arg | Leu | Thr | Asp | Glu | Glu | Val | Glu | Met | Thr | Arg | Met | Ala | Val | Gln | Phe | |
| | 175 | | | | 180 | | | | | 185 | | | | | 190 | |
| gag | ctg | gag | gac | ctg | aac | ctg | cgg | cct | gac | cca | gag | cca | ctt | ctc | acc | 685 |
| Glu | Leu | Glu | Asp | Leu | Asn | Leu | Arg | Pro | Asp | Pro | Glu | Pro | Leu | Leu | Thr | |
| | | | | 195 | | | | 200 | | | | | 205 | | | |
| gag | atg | att | cat | gaa | gcg | gct | tac | agg | gag | aac | aca | gtt | ggc | ctc | cac | 733 |
| Glu | Met | Ile | His | Glu | Ala | Ala | Tyr | Arg | Glu | Asn | Thr | Val | Gly | Leu | His | |
| | | | 210 | | | | 215 | | | | | 220 | | | | |
| cgt | ttc | tgc | ccc | aca | gaa | aac | gta | gca | aag | atc | aat | cga | gag | gtg | ctg | 781 |
| Arg | Phe | Cys | Pro | Thr | Glu | Asn | Val | Ala | Lys | Ile | Asn | Arg | Glu | Val | Leu | |
| | 225 | | | | | 230 | | | | | 235 | | | | | |
| cat | tcc | tac | ctg | agg | aac | tac | tac | act | ccc | gac | cgc | atg | gtg | ctg | gcc | 829 |
| His | Ser | Tyr | Leu | Arg | Asn | Tyr | Tyr | Thr | Pro | Asp | Arg | Met | Val | Leu | Ala | |
| | 240 | | | | 245 | | | | | 250 | | | | | | |
| ggc | gtg | ggc | gtg | gag | cac | gag | cat | ctg | gtg | gac | tgt | gcc | cgg | aag | tac | 877 |
| Gly | Val | Gly | Val | Glu | His | Glu | His | Leu | Val | Asp | Cys | Ala | Arg | Lys | Tyr | |
| | 255 | | | | 260 | | | | 265 | | | | | | 270 | |
| ctc | ctg | ggg | gtc | cag | ccg | gcc | tgg | ggg | agc | gca | gag | gcc | gtg | gat | att | 925 |
| Leu | Leu | Gly | Val | Gln | Pro | Ala | Trp | Gly | Ser | Ala | Glu | Ala | Val | Asp | Ile | |
| | | | | 275 | | | | 280 | | | | | 285 | | | |
| gac | aga | tct | gtg | gcc | cag | tac | act | ggg | ggg | att | gcc | aag | cta | gaa | aga | 973 |
| Asp | Arg | Ser | Val | Ala | Gln | Tyr | Thr | Gly | Gly | Ile | Ala | Lys | Leu | Glu | Arg | |
| | | | 290 | | | | 295 | | | | | 300 | | | | |
| gac | atg | tcc | aat | gtc | agc | ctg | ggc | ccg | acc | ccc | atc | ccc | gag | ctc | acg | 1021 |
| Asp | Met | Ser | Asn | Val | Ser | Leu | Gly | Pro | Thr | Pro | Ile | Pro | Glu | Leu | Thr | |
| | | 305 | | | | 310 | | | | | 315 | | | | | |
| cac | atc | atg | gtt | gga | ctg | gag | agc | tgc | tcc | ttc | ctg | gag | gag | gac | ttc | 1069 |
| His | Ile | Met | Val | Gly | Leu | Glu | Ser | Cys | Ser | Phe | Leu | Glu | Glu | Asp | Phe | |
| | 320 | | | | 325 | | | | | 330 | | | | | | |
| atc | ccc | ttt | gca | gtg | ttg | aac | atg | atg | atg | ggc | gga | ggt | ggc | tcc | ttc | 1117 |
| Ile | Pro | Phe | Ala | Val | Leu | Asn | Met | Met | Met | Gly | Gly | Gly | Gly | Ser | Phe | |
| | 335 | | | | 340 | | | | 345 | | | | | | 350 | |
| tgc | gct | ggt | ggg | ccc | ggc | aag | ggc | atg | ttc | tcc | agg | ctc | tac | ctc | aac | 1165 |
| Ser | Ala | Gly | Gly | Pro | Gly | Lys | Gly | Met | Phe | Ser | Arg | Leu | Tyr | Leu | Asn | |
| | | | | 355 | | | | 360 | | | | | 365 | | | |
| gtg | ctc | aac | agg | cac | cac | tgg | atg | tat | aac | gcg | acc | tcc | tac | cac | cac | 1213 |
| Val | Leu | Asn | Arg | His | His | Trp | Met | Tyr | Asn | Ala | Thr | Ser | Tyr | His | His | |
| | | | 370 | | | | 375 | | | | | 380 | | | | |
| agc | tac | gag | gac | act | ggc | ctc | ctt | tgc | atc | cat | gcc | agc | gcc | gac | cca | 1261 |
| Ser | Tyr | Glu | Asp | Thr | Gly | Leu | Leu | Cys | Ile | His | Ala | Ser | Ala | Asp | Pro | |
| | | 385 | | | | 390 | | | | | 395 | | | | | |
| aga | cag | gtt | cga | gaa | atg | gta | gaa | atc | atc | aca | aag | gag | ttt | att | tta | 1309 |

| | |
|--|------|
| Arg Gln Val Arg Glu Met Val Glu Ile Ile Thr Lys Glu Phe Ile Leu | |
| 400 405 410 | |
| atg ggc gga acc gtg gac acg gtg gag ctg gaa cga gcc aag acg cag | 1357 |
| Met Gly Gly Thr Val Asp Thr Val Glu Leu Glu Arg Ala Lys Thr Gln | |
| 415 420 425 430 | |
| ctg aca tca atg ctc atg atg aac ctg gaa tcc agg cct gtg atc ttc | 1405 |
| Leu Thr Ser Met Leu Met Met Asn Leu Glu Ser Arg Pro Val Ile Phe | |
| 435 440 445 | |
| gag gat gtg ggg agg cag gtg ctg gcc act cgc tcc aga aag ctg ccg | 1453 |
| Glu Asp Val Gly Arg Gln Val Leu Ala Thr Arg Ser Arg Lys Leu Pro | |
| 450 455 460 | |
| cac gag ctg tgc acg ctc atc cgc aac gtg aag ccg gaa gat gtg aag | 1501 |
| His Glu Leu Cys Thr Leu Ile Arg Asn Val Lys Pro Glu Asp Val Lys | |
| 465 470 475 | |
| aga gtc gct tct aag atg ctc cga ggg aag ccg gca gtg gcc gcc ctg | 1549 |
| Arg Val Ala Ser Lys Met Leu Arg Gly Lys Pro Ala Val Ala Ala Leu | |
| 480 485 490 | |
| ggt gac ctg act gac ctg ccc acg tat gag cac atc cag acc gcc ctg | 1597 |
| Gly Asp Leu Thr Asp Leu Pro Thr Tyr Glu His Ile Gln Thr Ala Leu | |
| 495 500 505 510 | |
| tcg agt aag gac ggg cgc ctg ccc agg acg tac cgg ctc ttc cgg tag | 1645 |
| Ser Ser Lys Asp Gly Arg Leu Pro Arg Thr Tyr Arg Leu Phe Arg * | |
| 515 520 525 | |
| aaccgctccc cggcctgaca gacccaggga gctgcagctg gagcccgttc ccgtgcgtgt | 1705 |
| tagtttggac acgaatttag tctaaaaagc tgtctggttg tataaacggt gcaaacaatg | 1765 |
| tcgccacagc acccacgcgg tttgcattct tttggaactc aatgtgccga tcagtggagt | 1825 |
| cagtatcgag cctgaccacc gcaagccagg aagcagggtga agtgcccagc gctggagtgc | 1885 |
| agcgtgccac gaggagggcg gtcggtgctt ccctcctcgg gctgtgggca catggggccc | 1945 |
| cgcaggttcc ttggaggagc cctgagctgg gaggcagcaa aggctgacct atcaaagcct | 2005 |
| cccggaggcc accgtgctgg gtaccaggac tcacctctga caagcaggag aaggtaaggg | 2065 |
| cccggtcagc tccaaggagc gcgctccacg cgcgtgcaca cagcttcctt ggtaataaag | 2125 |
| agctggcatc tttcttaaaa aaaaaaaaa | 2153 |

<210> 846
 <211> 4455
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)..(4080)

| | |
|---|----|
| <400> 846 | |
| atg gcg gag gcc ggc ctg agg ggc tgg ctg ctg tgg gcc ctg ctc ctg | 48 |
| Met Ala Glu Ala Gly Leu Arg Gly Trp Leu Leu Trp Ala Leu Leu Leu | |

| 1 | 5 | 10 | 15 | |
|---|-----|-----|-----|-----|
| cgc ttg gcc cag agt gag cct tac aca acc atc cac cag cct ggc tac | | | | 96 |
| Arg Leu Ala Gln Ser Glu Pro Tyr Thr Thr Ile His Gln Pro Gly Tyr | 20 | 25 | 30 | |
| tgc gcc ttc tat gac gaa tgt ggg aag aac cca gag ctg tct gga agc | | | | 144 |
| Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser | 35 | 40 | 45 | |
| ctc atg aca ctc tcc aac gtg tcc tgc ctg tcc aac acg ccg gcc cgc | | | | 192 |
| Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg | 50 | 55 | 60 | |
| aag atc aca ggt gat cac ctg atc cta tta cag aag atc tgc ccc cgc | | | | 240 |
| Lys Ile Thr Gly Asp His Leu Ile Leu Leu Gln Lys Ile Cys Pro Arg | 65 | 70 | 75 | 80 |
| ctc tac acc ggc ccc aac acc caa gcc tgc tgc tcc gcc aag cag ctg | | | | 288 |
| Leu Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu | 85 | 90 | 95 | |
| gta tca ctg gaa gcg agt ctg tcg atc acc aag gcc ctc ctc acc cgc | | | | 336 |
| Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg | 100 | 105 | 110 | |
| tgc cca gcc tgc tct gac aat ttt gtg aac ctg cac tgc cac aac acg | | | | 384 |
| Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr | 115 | 120 | 125 | |
| tgc agc ccc aat cag agc ctc ttc atc aat gtg acc cgc gtg gcc cag | | | | 432 |
| Cys Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln | 130 | 135 | 140 | |
| cta ggg gct gga caa ctc cca gct gtg gtg gcc tat gag gcc ttc tac | | | | 480 |
| Leu Gly Ala Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr | 145 | 150 | 155 | 160 |
| cag cat agc ttt gcc gag cag agc tat gac tcc tgc agc cgt gtg cgc | | | | 528 |
| Gln His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg | 165 | 170 | 175 | |
| gtc cct gca gct gcc acg ctg gct gtg ggc acc atg tgt ggc gtg tat | | | | 576 |
| Val Pro Ala Ala Ala Thr Leu Ala Val Gly Thr Met Cys Gly Val Tyr | 180 | 185 | 190 | |
| ggc tct gcc ctt tgc aat gcc cag cgc tgg ctc aac ttc cag gga gac | | | | 624 |
| Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp | 195 | 200 | 205 | |
| aca ggc aat ggt ctg gcc cca ctg gac atc acc ttc cac ctc ttg gag | | | | 672 |
| Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu | 210 | 215 | 220 | |
| cct ggc cag gcc gtg ggg agt ggg att cag cct ctg aat gag ggg gtt | | | | 720 |
| Pro Gly Gln Ala Val Gly Ser Gly Ile Gln Pro Leu Asn Glu Gly Val | 225 | 230 | 235 | 240 |
| gca cgt tgc aat gag tcc caa ggt gac gac gtg gcg acc tgc tcc tgc | | | | 768 |
| Ala Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys | 245 | 250 | 255 | |
| caa gac tgt gct gca tcc tgt cct gcc ata gcc cgc ccc cag gcc ctc | | | | 816 |
| Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu | | | | |

| 260 | 265 | 270 | |
|---|-----|-----|------|
| gac tcc acc ttc tac ctg ggc cag atg ccg ggc agt ctg gtc ctc atc Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile 275 280 285 | | | 864 |
| atc atc ctc tgc tct gtc ttc gct gtg gtc acc atc ctg ctt gtg gga Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly 290 295 300 | | | 912 |
| ttc cgt gtg gcc ccc gcc agg gac aaa agc aag atg gtg gac ccc aag Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys 305 310 315 320 | | | 960 |
| aag ggc acc agc ctc tct gac aag ctc agc ttc tcc acc cac acc ctc Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu 325 330 335 | | | 1008 |
| ctt ggc cag ttc ttc cag ggc tgg ggc acg tgg gtg gct tcg tgg cct Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro 340 345 350 | | | 1056 |
| ctg acc atc ttg gtg cta tct gtc atc ccg gtg gtg gcc ttg gca gcg Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala 355 360 365 | | | 1104 |
| ggc ctg gtc ttt aca gaa ctc act acg gac ccc gtg gag ctg tgg tcg Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser 370 375 380 | | | 1152 |
| gcc ccc aac agc caa gcc cgg agt gag aaa gct ttc cat gac cag cat Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His 385 390 395 400 | | | 1200 |
| ttc ggc ccc ttc ttc cga acc aac cag gtg atc ctg acg gct cct aac Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn 405 410 415 | | | 1248 |
| cgg tcc agc tac agg tat gac tct ctg ctg ctg ggg ccc aag aac ttc Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe 420 425 430 | | | 1296 |
| agc gga atc ctg gac ctg gac ttg ctg ctg gag ctg cta gag ctg cag Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln 435 440 445 | | | 1344 |
| gag agg ctg cgg cac ctc cag gta tgg tcg ccc gaa gca cag cgc aac Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn 450 455 460 | | | 1392 |
| atc tcc ctg cag gac atc tgc tac gcc ccc ctc aat ccg gac aat acc Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr 465 470 475 480 | | | 1440 |
| agt ctc tac gac tgc tgc atc aac agc ctc ctg cag tat ttc cag aac Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn 485 490 495 | | | 1488 |
| aac cgc acg ctc ctg ctg ctc aca gcc aac cag aca ctg atg ggg cag Asn Arg Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln 500 505 510 | | | 1536 |
| acc tcc caa gtc gac tgg aag gac cat ttt ctg tac tgt gcc aat gcc Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala 515 520 525 530 | | | 1584 |

| 515 | 520 | 525 | |
|---|-----|-----|------|
| ccg ctc acc ttc aag gat ggc aca gcc ctg gcc ctg agc tgc atg gct Pro Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Met Ala 530 535 540 | | | 1632 |
| gac tac ggg gcc cct gtc ttc ccc ttc ctt gcc att ggg ggg tac aaa Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys 545 550 555 560 | | | 1680 |
| gga aag gac tat tct gag gca gag gcc ctg atc atg acg ttc tcc ctc Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu 565 570 575 | | | 1728 |
| aac aat tac cct gcc ggg gac ccc cgt ctg gcc cag gcc aag ctg tgg Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp 580 585 590 | | | 1776 |
| gag gag gcc ttc tta gag gaa atg cga gcc ttc cag cgt cgg atg gct Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala 595 600 605 | | | 1824 |
| ggc atg ttc cag gtc acg ttc atg gct gag cgc tct ctg gaa gac gag Gly Met Phe Gln Val Thr Phe Met Ala Glu Arg Ser Leu Glu Asp Glu 610 615 620 | | | 1872 |
| atc aat cgc acc aca gct gaa gac ctg ccc atc ttt gcc acc agc tac Ile Asn Arg Thr Thr Ala Glu Asp Leu Pro Ile Phe Ala Thr Ser Tyr 625 630 635 640 | | | 1920 |
| att gtc ata ttc ctg tac atc tct ctg gcc ctg ggc agc tat tcc agc Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser 645 650 655 | | | 1968 |
| tgg agc cga gtg atg gtg gac tcc aag gcc acg ctg ggc ctc ggc ggg Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly 660 665 670 | | | 2016 |
| gtg gcc gtg gtc ctg gga gca gtc atg gct gcc atg ggc ttc ttc tcc Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser 675 680 685 | | | 2064 |
| tac ttg ggt atc cgc tcc tcc ctg gtc atc ctg caa gtg gtt cct ttc Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe 690 695 700 | | | 2112 |
| ctg gtg ctg tcc gtg ggg gct gat aac atc ttc atc ttt gtt ctc gag Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu 705 710 715 720 | | | 2160 |
| tac cag agg ctg ccc cgg agg cct ggg gag cca cga gag gtc cac att Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile 725 730 735 | | | 2208 |
| ggg cga gcc cta ggc agg gtg gct ccc agc atg ctg ttg tgc agc ctc Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu 740 745 750 | | | 2256 |
| tct gag gcc atc tgc ttc ttc cta ggg gcc ctg acc ccc atg cca gct Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala 755 760 765 | | | 2304 |
| gtg cgg acc ttt gcc ctg acc tct ggc ctt gca gtg atc ctt gac ttc Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Val Ile Leu Asp Phe 770 775 780 | | | 2352 |

| 770 | 775 | 780 | |
|---|-----|-----|------|
| ctc ctg cag atg tca gcc ttt gtg gcc ctg ctc tcc ctg gac agc aag Leu Leu Gln Met Ser Ala Phe Val Ala Leu Leu Ser Leu Asp Ser Lys 785 790 795 800 | | | 2400 |
| agg cag gag gcc tcc cgg ttg gac gtc tgc tgc tgt gtc aag ccc cag Arg Gln Glu Ala Ser Arg Leu Asp Val Cys Cys Cys Val Lys Pro Gln 805 810 815 | | | 2448 |
| gag ctg ccc ccg cct ggc cag gga gag ggg ctc ctg ctt ggc ttc ttc Glu Leu Pro Pro Pro Gly Gln Gly Glu Gly Leu Leu Leu Gly Phe Phe 820 825 830 | | | 2496 |
| caa aag gct tat gcc ccc ttc ctg ctg cac tgg atc act cga ggt gtt Gln Lys Ala Tyr Ala Pro Phe Leu Leu His Trp Ile Thr Arg Gly Val 835 840 845 | | | 2544 |
| gtg ctg ctg ctg ttt ctc gcc ctg ttc gga gtg agc ctc tac tcc atg Val Leu Leu Leu Phe Leu Ala Leu Phe Gly Val Ser Leu Tyr Ser Met 850 855 860 | | | 2592 |
| tgc cac atc agc gtg gga ctg gac cag gag ctg gcc ctg ccc aag gac Cys His Ile Ser Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp 865 870 875 880 | | | 2640 |
| tcg tac ctg ctt gac tat ttc ctc ttt ctg aac cgc tac ttc gag gtg Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val 885 890 895 | | | 2688 |
| ggg gcc ccg gtg tac ttt gtt acc acc ttg ggc tac aac ttc tcc agc Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser 900 905 910 | | | 2736 |
| gag gct ggg atg aat gcc atc tgc tcc agt gca ggc tgc aac aac ttc Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe 915 920 925 | | | 2784 |
| tcc ttc acc cag aag atc cag tat gcc aca gag ttc cct gag cag tct Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser 930 935 940 | | | 2832 |
| tac ctg gcc atc cct gcc tcc tcc tgg gtg gat gac ttc att gac tgg Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp 945 950 955 960 | | | 2880 |
| ctg acc ccg tcc tcc tgc tgc cgc ctt tat ata tct ggc ccc aat aag Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys 965 970 975 | | | 2928 |
| gac aag ttc tgc ccc tcg acc gtc aac tct ctg aac tgc cta aag aac Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn 980 985 990 | | | 2976 |
| tgc atg agc atc acg atg ggc tct gtg agg ccc tcg gtg gag cag ttc Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe 995 1000 1005 | | | 3024 |
| cat aag tat ctt ccc tgg ttc ctg aac gac cgg ccc aac atc aaa tgt His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys Cys 1010 1015 1020 | | | 3072 |
| ccc aaa ggc ggc ctg gca gca tac agc acc tct gtg aac ttg act tca Pro Lys Gly Gly Leu Ala Ala Tyr Ser Thr Ser Val Asn Leu Thr Ser 3120 | | | |

| 1025 | 1030 | 1035 | 1040 | |
|---|------|------|------|------|
| gat ggc cag gtt tta gac aca gtt gcc att ctg tca ccc agg ctg gag | | | | 3168 |
| Asp Gly Gln Val Leu Asp Thr Val Ala Ile Leu Ser Pro Arg Leu Glu | | | | |
| | 1045 | 1050 | 1055 | |
| tac agt ggc aca atc tcg gct cac tgc aac ctc tac ctc ctg gat tca | | | | 3216 |
| Tyr Ser Gly Thr Ile Ser Ala His Cys Asn Leu Tyr Leu Leu Asp Ser | | | | |
| | 1060 | 1065 | 1070 | |
| gcc tcc agg ttc atg gcc tat cac aag ccc ctg aaa aac tca cag gat | | | | 3264 |
| Ala Ser Arg Phe Met Ala Tyr His Lys Pro Leu Lys Asn Ser Gln Asp | | | | |
| | 1075 | 1080 | 1085 | |
| tac aca gaa gct ctg cgg gca gct cga gag ctg gca gcc aac atc act | | | | 3312 |
| Tyr Thr Glu Ala Leu Arg Ala Ala Arg Glu Leu Ala Ala Asn Ile Thr | | | | |
| | 1090 | 1095 | 1100 | |
| gct gac ctg cgg aaa gtg cct gga aca gac ccg gct ttt gag gtc ttc | | | | 3360 |
| Ala Asp Leu Arg Lys Val Pro Gly Thr Asp Pro Ala Phe Glu Val Phe | | | | |
| 1105 | 1110 | 1115 | 1120 | |
| ccc tac acg atc acc aat gtg ttt tat gag cag tac ctg acc atc ctc | | | | 3408 |
| Pro Tyr Thr Ile Thr Asn Val Phe Tyr Glu Gln Tyr Leu Thr Ile Leu | | | | |
| | 1125 | 1130 | 1135 | |
| cct gag ggg ctc ttc atg ctc agc ctc tgc ctt gtg ccc acc ttc gct | | | | 3456 |
| Pro Glu Gly Leu Phe Met Leu Ser Leu Cys Leu Val Pro Thr Phe Ala | | | | |
| | 1140 | 1145 | 1150 | |
| gtc tcc tgc ctc ctg ctg ggc ctg gac ctg cgc tcc ggc ctc ctc aac | | | | 3504 |
| Val Ser Cys Leu Leu Leu Gly Leu Asp Leu Arg Ser Gly Leu Leu Asn | | | | |
| | 1155 | 1160 | 1165 | |
| ctg ctc tcc att gtc atg atc ctc gtg gac act gtc ggc ttc atg gcc | | | | 3552 |
| Leu Leu Ser Ile Val Met Ile Leu Val Asp Thr Val Gly Phe Met Ala | | | | |
| | 1170 | 1175 | 1180 | |
| ctg tgg ggc atc agt tac aat gct gtg tcc ctc atc aac ctg gtc tcg | | | | 3600 |
| Leu Trp Gly Ile Ser Tyr Asn Ala Val Ser Leu Ile Asn Leu Val Ser | | | | |
| 1185 | 1190 | 1195 | 1200 | |
| gcg gtg ggc atg tct gtg gag ttt gtg tcc cac att acc cgc tcc ttt | | | | 3648 |
| Ala Val Gly Met Ser Val Glu Phe Val Ser His Ile Thr Arg Ser Phe | | | | |
| | 1205 | 1210 | 1215 | |
| gcc atc agc acc aag ccc acc tgg ctg gag agg gcc aaa gag gcc acc | | | | 3696 |
| Ala Ile Ser Thr Lys Pro Thr Trp Leu Glu Arg Ala Lys Glu Ala Thr | | | | |
| | 1220 | 1225 | 1230 | |
| atc tct atg gga agt gcg gtg ttt gca ggt gtg gcc atg acc aac ctg | | | | 3744 |
| Ile Ser Met Gly Ser Ala Val Phe Ala Gly Val Ala Met Thr Asn Leu | | | | |
| | 1235 | 1240 | 1245 | |
| cct ggc atc ctt gtc ctg ggc ctc gcc aag gcc cag ctc att cag atc | | | | 3792 |
| Pro Gly Ile Leu Val Leu Gly Leu Ala Lys Ala Gln Leu Ile Gln Ile | | | | |
| | 1250 | 1255 | 1260 | |
| ttc ttc ttc cgc ctc aac ctc ctg atc act ctg ctg ggc ctg ctg cat | | | | 3840 |
| Phe Phe Phe Arg Leu Asn Leu Leu Ile Thr Leu Leu Gly Leu Leu His | | | | |
| 1265 | 1270 | 1275 | 1280 | |
| ggc ttg gtc ttc ctg ccc gtc atc ctc agc tac gtg ggg cct gac gtt | | | | 3888 |
| Gly Leu Val Phe Leu Pro Val Ile Leu Ser Tyr Val Gly Pro Asp Val | | | | |

| | 1285 | 1290 | 1295 | |
|---|------|------|------|------|
| aac ccg gct ctg gca ctg gag cag aag cgg gct gag gag gcg gtg gca | | | | 3936 |
| Asn Pro Ala Leu Ala Leu Glu Gln Lys Arg Ala Glu Glu Ala Val Ala | | | | |
| | 1300 | 1305 | 1310 | |
| gca gtc atg gtg gcc tct tgc cca aat cac ccc tcc cga gtc tcc aca | | | | 3984 |
| Ala Val Met Val Ala Ser Cys Pro Asn His Pro Ser Arg Val Ser Thr | | | | |
| | 1315 | 1320 | 1325 | |
| gct gac aac atc tat gtc aac cac agc ttt gaa ggt tct atc aaa ggt | | | | 4032 |
| Ala Asp Asn Ile Tyr Val Asn His Ser Phe Glu Gly Ser Ile Lys Gly | | | | |
| | 1330 | 1335 | 1340 | |
| gct ggt gcc atc agc aac ttc ttg ccc aac aat ggg cgg cag ttc tga | | | | 4080 |
| Ala Gly Ala Ile Ser Asn Phe Leu Pro Asn Asn Gly Arg Gln Phe * | | | | |
| 1345 | 1350 | 1355 | 1360 | |
| tacagccaga ggccctgtct aggcctctatg gccctgaacc aaagggttat ggggatcttc | | | | 4140 |
| cttggtgactg ccccttgaca cacgccctcc tcaaataccta ggggaggcca ttcccatgag | | | | 4200 |
| actgcctgtc actggaggat ggccctgtct tgaggtatcc aggcagcacc actgatggct | | | | 4260 |
| cttggggctg ggctggctct cccatcttca cctcgggcct ggatcccagg cctcaaacca | | | | 4320 |
| gcccaacccg aacctttgga acagttttcc aaaaccttga cctgcagggg aaatgaaaat | | | | 4380 |
| cctggctctg tgctgtgcac ataggtgttt aataaacatt tgttggccga gggcaaaaaa | | | | 4440 |
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<210> 847
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 <213> Homo sapiens

<220>
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 <222> (1) .. (3999)

| | |
|---|-----|
| atg gcg gag gcc ggc ctg agg ggc tgg ctg ctg tgg gcc ctg ctc ctg | 48 |
| Met Ala Glu Ala Gly Leu Arg Gly Trp Leu Leu Trp Ala Leu Leu Leu | |
| 1 5 10 15 | |
| cgc ttg gcc cag agt gag cct tac aca acc atc cac cag cct ggc tac | 96 |
| Arg Leu Ala Gln Ser Glu Pro Tyr Thr Thr Ile His Gln Pro Gly Tyr | |
| 20 25 30 | |
| tgc gcc ttc tat gac gaa tgt ggg aag aac cca gag ctg tct gga agc | 144 |
| Cys Ala Phe Tyr Asp Glu Cys Gly Lys Asn Pro Glu Leu Ser Gly Ser | |
| 35 40 45 | |
| ctc atg aca ctc tcc aac gtg tcc tgc ctg tcc aac acg ccg gcc cgc | 192 |
| Leu Met Thr Leu Ser Asn Val Ser Cys Leu Ser Asn Thr Pro Ala Arg | |
| 50 55 60 | |
| aag atc aca ggt gat cac ctg atc cta tta cag aag atc tgc ccc cgc | 240 |
| Lys Ile Thr Gly Asp His Leu Ile Leu Leu Gln Lys Ile Cys Pro Arg | |
| 65 70 75 80 | |

| | |
|---|------|
| ctc tac acc ggc ccc aac acc caa gcc tgc tgc tcc gcc aag cag ctg | 288 |
| Leu Tyr Thr Gly Pro Asn Thr Gln Ala Cys Cys Ser Ala Lys Gln Leu | |
| 85 90 95 | |
| gta tca ctg gaa gcg agt ctg tgc atc acc aag gcc ctc ctc acc cgc | 336 |
| Val Ser Leu Glu Ala Ser Leu Ser Ile Thr Lys Ala Leu Leu Thr Arg | |
| 100 105 110 | |
| tgc cca gcc tgc tct gac aat ttt gtg aac ctg cac tgc cac aac acg | 384 |
| Cys Pro Ala Cys Ser Asp Asn Phe Val Asn Leu His Cys His Asn Thr | |
| 115 120 125 | |
| tgc agc ccc aat cag agc ctc ttc atc aat gtg acc cgc gtg gcc cag | 432 |
| Cys Ser Pro Asn Gln Ser Leu Phe Ile Asn Val Thr Arg Val Ala Gln | |
| 130 135 140 | |
| cta ggg gct gga caa ctc cca gct gtg gtg gcc tat gag gcc ttc tac | 480 |
| Leu Gly Ala Gly Gln Leu Pro Ala Val Val Ala Tyr Glu Ala Phe Tyr | |
| 145 150 155 160 | |
| cag cat agc ttt gcc gag cag agc tat gac tcc tgc agc cgt gtg cgc | 528 |
| Gln His Ser Phe Ala Glu Gln Ser Tyr Asp Ser Cys Ser Arg Val Arg | |
| 165 170 175 | |
| gtc cct gca gct gcc acg ctg gct gtg ggc acc atg tgt ggc gtg tat | 576 |
| Val Pro Ala Ala Ala Thr Leu Ala Val Gly Thr Met Cys Gly Val Tyr | |
| 180 185 190 | |
| ggc tct gcc ctt tgc aat gcc cag cgc tgg ctc aac ttc cag gga gac | 624 |
| Gly Ser Ala Leu Cys Asn Ala Gln Arg Trp Leu Asn Phe Gln Gly Asp | |
| 195 200 205 | |
| aca ggc aat ggt ctg gcc cca ctg gac atc acc ttc cac ctc ttg gag | 672 |
| Thr Gly Asn Gly Leu Ala Pro Leu Asp Ile Thr Phe His Leu Leu Glu | |
| 210 215 220 | |
| cct ggc cag gcc gtg ggg agt ggg att cag cct ctg aat gag ggg gtt | 720 |
| Pro Gly Gln Ala Val Gly Ser Gly Ile Gln Pro Leu Asn Glu Gly Val | |
| 225 230 235 240 | |
| gca cgt tgc aat gag tcc caa ggt gac gac gtg gcg acc tgc tcc tgc | 768 |
| Ala Arg Cys Asn Glu Ser Gln Gly Asp Asp Val Ala Thr Cys Ser Cys | |
| 245 250 255 | |
| caa gac tgt gct gca tcc tgt cct gcc ata gcc cgc ccc cag gcc ctc | 816 |
| Gln Asp Cys Ala Ala Ser Cys Pro Ala Ile Ala Arg Pro Gln Ala Leu | |
| 260 265 270 | |
| gac tcc acc ttc tac ctg ggc cag atg ccg ggc agt ctg gtc ctc atc | 864 |
| Asp Ser Thr Phe Tyr Leu Gly Gln Met Pro Gly Ser Leu Val Leu Ile | |
| 275 280 285 | |
| atc atc ctc tgc tct gtc ttc gct gtg gtc acc atc ctg ctt gtg gga | 912 |
| Ile Ile Leu Cys Ser Val Phe Ala Val Val Thr Ile Leu Leu Val Gly | |
| 290 295 300 | |
| ttc cgt gtg gcc ccc gcc agg gac aaa agc aag atg gtg gac ccc aag | 960 |
| Phe Arg Val Ala Pro Ala Arg Asp Lys Ser Lys Met Val Asp Pro Lys | |
| 305 310 315 320 | |
| aag ggc acc agc ctc tct gac aag ctc agc ttc tcc acc cac acc ctc | 1008 |
| Lys Gly Thr Ser Leu Ser Asp Lys Leu Ser Phe Ser Thr His Thr Leu | |
| 325 330 335 | |

| | |
|---|------|
| ctt ggc cag ttc ttc cag ggc tgg ggc acg tgg gtg gct tcg tgg cct | 1056 |
| Leu Gly Gln Phe Phe Gln Gly Trp Gly Thr Trp Val Ala Ser Trp Pro | |
| 340 345 350 | |
| ctg acc atc ttg gtg cta tct gtc atc ccg gtg gtg gcc ttg gca gcg | 1104 |
| Leu Thr Ile Leu Val Leu Ser Val Ile Pro Val Val Ala Leu Ala Ala | |
| 355 360 365 | |
| ggc ctg gtc ttt aca gaa ctc act acg gac ccc gtg gag ctg tgg tcg | 1152 |
| Gly Leu Val Phe Thr Glu Leu Thr Thr Asp Pro Val Glu Leu Trp Ser | |
| 370 375 380 | |
| gcc ccc aac agc caa gcc cgg agt gag aaa gct ttc cat gac cag cat | 1200 |
| Ala Pro Asn Ser Gln Ala Arg Ser Glu Lys Ala Phe His Asp Gln His | |
| 385 390 395 400 | |
| ttc ggc ccc ttc ttc cga acc aac cag gtg atc ctg acg gct cct aac | 1248 |
| Phe Gly Pro Phe Phe Arg Thr Asn Gln Val Ile Leu Thr Ala Pro Asn | |
| 405 410 415 | |
| cgg tcc agc tac agg tat gac tct ctg ctg ctg ggg ccc aag aac ttc | 1296 |
| Arg Ser Ser Tyr Arg Tyr Asp Ser Leu Leu Leu Gly Pro Lys Asn Phe | |
| 420 425 430 | |
| agc gga atc ctg gac ctg gac ttg ctg ctg gag ctg cta gag ctg cag | 1344 |
| Ser Gly Ile Leu Asp Leu Asp Leu Leu Leu Glu Leu Leu Glu Leu Gln | |
| 435 440 445 | |
| gag agg ctg cgg cac ctc cag gta tgg tcg ccc gaa gca cag cgc aac | 1392 |
| Glu Arg Leu Arg His Leu Gln Val Trp Ser Pro Glu Ala Gln Arg Asn | |
| 450 455 460 | |
| atc tcc ctg cag gac atc tgc tac gcc ccc ctc aat ccg gac aat acc | 1440 |
| Ile Ser Leu Gln Asp Ile Cys Tyr Ala Pro Leu Asn Pro Asp Asn Thr | |
| 465 470 475 480 | |
| agt ctc tac gac tgc tgc atc aac agc ctc ctg cag tat ttc cag aac | 1488 |
| Ser Leu Tyr Asp Cys Cys Ile Asn Ser Leu Leu Gln Tyr Phe Gln Asn | |
| 485 490 495 | |
| aac cgc acg ctc ctg ctg ctc aca gcc aac cag aca ctg atg ggg cag | 1536 |
| Asn Arg Thr Leu Leu Leu Leu Thr Ala Asn Gln Thr Leu Met Gly Gln | |
| 500 505 510 | |
| acc tcc caa gtc gac tgg aag gac cat ttt ctg tac tgt gcc aat gcc | 1584 |
| Thr Ser Gln Val Asp Trp Lys Asp His Phe Leu Tyr Cys Ala Asn Ala | |
| 515 520 525 | |
| ccg ctc acc ttc aag gat ggc aca gcc ctg gcc ctg agc tgc atg gct | 1632 |
| Pro Leu Thr Phe Lys Asp Gly Thr Ala Leu Ala Leu Ser Cys Met Ala | |
| 530 535 540 | |
| gac tac ggg gcc cct gtc ttc ccc ttc ctt gcc att ggg ggg tac aaa | 1680 |
| Asp Tyr Gly Ala Pro Val Phe Pro Phe Leu Ala Ile Gly Gly Tyr Lys | |
| 545 550 555 560 | |
| gga aag gac tat tct gag gca gag gcc ctg atc atg acg ttc tcc ctc | 1728 |
| Gly Lys Asp Tyr Ser Glu Ala Glu Ala Leu Ile Met Thr Phe Ser Leu | |
| 565 570 575 | |
| aac aat tac cct gcc ggg gac ccc cgt ctg gcc cag gcc aag ctg tgg | 1776 |
| Asn Asn Tyr Pro Ala Gly Asp Pro Arg Leu Ala Gln Ala Lys Leu Trp | |
| 580 585 590 | |

| | |
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| gag gag gcc ttc tta gag gaa atg cga gcc ttc cag cgt cgg atg gct Glu Glu Ala Phe Leu Glu Glu Met Arg Ala Phe Gln Arg Arg Met Ala 595 600 605 | 1824 |
| ggc atg ttc cag gtc acg ttc atg gct gag cgc tct ctg gaa gac gag Gly Met Phe Gln Val Thr Phe Met Ala Glu Arg Ser Leu Glu Asp Glu 610 615 620 | 1872 |
| atc aat cgc acc aca gct gaa gac ctg ccc atc ttt gcc acc agc tac Ile Asn Arg Thr Thr Ala Glu Asp Leu Pro Ile Phe Ala Thr Ser Tyr 625 630 635 640 | 1920 |
| att gtc ata ttc ctg tac atc tct ctg gcc ctg ggc agc tat tcc agc Ile Val Ile Phe Leu Tyr Ile Ser Leu Ala Leu Gly Ser Tyr Ser Ser 645 650 655 | 1968 |
| tgg agc cga gtg atg gtg gac tcc aag gcc acg ctg ggc ctc ggc ggg Trp Ser Arg Val Met Val Asp Ser Lys Ala Thr Leu Gly Leu Gly Gly 660 665 670 | 2016 |
| gtg gcc gtg gtc ctg gga gca gtc atg gct gcc atg ggc ttc ttc tcc Val Ala Val Val Leu Gly Ala Val Met Ala Ala Met Gly Phe Phe Ser 675 680 685 | 2064 |
| tac ttg ggt atc cgc tcc tcc ctg gtc atc ctg caa gtg gtt cct ttc Tyr Leu Gly Ile Arg Ser Ser Leu Val Ile Leu Gln Val Val Pro Phe 690 695 700 | 2112 |
| ctg gtg ctg tcc gtg ggg gct gat aac atc ttc atc ttt gtt ctc gag Leu Val Leu Ser Val Gly Ala Asp Asn Ile Phe Ile Phe Val Leu Glu 705 710 715 720 | 2160 |
| tac cag agg ctg ccc cgg agg cct ggg gag cca cga gag gtc cac att Tyr Gln Arg Leu Pro Arg Arg Pro Gly Glu Pro Arg Glu Val His Ile 725 730 735 | 2208 |
| ggg cga gcc cta ggc agg gtg gct ccc agc atg ctg ttg tgc agc ctc Gly Arg Ala Leu Gly Arg Val Ala Pro Ser Met Leu Leu Cys Ser Leu 740 745 750 | 2256 |
| tct gag gcc atc tgc ttc ttc cta ggg gcc ctg acc ccc atg cca gct Ser Glu Ala Ile Cys Phe Phe Leu Gly Ala Leu Thr Pro Met Pro Ala 755 760 765 | 2304 |
| gtg cgg acc ttt gcc ctg acc tct ggc ctt gca gtg atc ctt gac ttc Val Arg Thr Phe Ala Leu Thr Ser Gly Leu Ala Val Ile Leu Asp Phe 770 775 780 | 2352 |
| ctc ctg cag atg tca gcc ttt gtg gcc ctg ctc tcc ctg gac agc aag Leu Leu Gln Met Ser Ala Phe Val Ala Leu Leu Ser Leu Asp Ser Lys 785 790 795 800 | 2400 |
| agg cag gag gcc tcc cgg ttg gac gtc tgc tgc tgt gtc aag ccc cag Arg Gln Glu Ala Ser Arg Leu Asp Val Cys Cys Cys Val Lys Pro Gln 805 810 815 | 2448 |
| gag ctg ccc ccg cct ggc cag gga gag ggg ctc ctg ctt ggc ttc ttc Glu Leu Pro Pro Pro Gly Gln Gly Glu Gly Leu Leu Leu Gly Phe Phe 820 825 830 | 2496 |
| caa aag gct tat gcc ccc ttc ctg ctg cac tgg atc act cga ggt gtt Gln Lys Ala Tyr Ala Pro Phe Leu Leu His Trp Ile Thr Arg Gly Val 835 840 845 | 2544 |

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| gtg ctg ctg ctg ttt ctc gcc ctg ttc gga gtg agc ctc tac tcc atg Val Leu Leu Leu Phe Leu Ala Leu Phe Gly Val Ser Leu Tyr Ser Met 850 855 860 | 2592 |
| tgc cac atc agc gtg gga ctg gac cag gag ctg gcc ctg ccc aag gac Cys His Ile Ser Val Gly Leu Asp Gln Glu Leu Ala Leu Pro Lys Asp 865 870 875 880 | 2640 |
| tcg tac ctg ctt gac tat ttc ctc ttt ctg aac cgc tac ttc gag gtg Ser Tyr Leu Leu Asp Tyr Phe Leu Phe Leu Asn Arg Tyr Phe Glu Val 885 890 895 | 2688 |
| ggg gcc ccg gtg tac ttt gtt acc acc ttg ggc tac aac ttc tcc agc Gly Ala Pro Val Tyr Phe Val Thr Thr Leu Gly Tyr Asn Phe Ser Ser 900 905 910 | 2736 |
| gag gct ggg atg aat gcc atc tgc tcc agt gca ggc tgc aac aac ttc Glu Ala Gly Met Asn Ala Ile Cys Ser Ser Ala Gly Cys Asn Asn Phe 915 920 925 | 2784 |
| tcc ttc acc cag aag atc cag tat gcc aca gag ttc cct gag cag tct Ser Phe Thr Gln Lys Ile Gln Tyr Ala Thr Glu Phe Pro Glu Gln Ser 930 935 940 | 2832 |
| tac ctg gcc atc cct gcc tcc tcc tgg gtg gat gac ttc att gac tgg Tyr Leu Ala Ile Pro Ala Ser Ser Trp Val Asp Asp Phe Ile Asp Trp 945 950 955 960 | 2880 |
| ctg acc ccg tcc tcc tgc tgc cgc ctt tat ata tct ggc ccc aat aag Leu Thr Pro Ser Ser Cys Cys Arg Leu Tyr Ile Ser Gly Pro Asn Lys 965 970 975 | 2928 |
| gac aag ttc tgc ccc tcg acc gtc aac tct ctg aac tgc cta aag aac Asp Lys Phe Cys Pro Ser Thr Val Asn Ser Leu Asn Cys Leu Lys Asn 980 985 990 | 2976 |
| tgc atg agc atc acg atg ggc tct gtg agg ccc tcg gtg gag cag ttc Cys Met Ser Ile Thr Met Gly Ser Val Arg Pro Ser Val Glu Gln Phe 995 1000 1005 | 3024 |
| cat aag tat ctt ccc tgg ttc ctg aac gac cgg ccc aac atc aaa tgt His Lys Tyr Leu Pro Trp Phe Leu Asn Asp Arg Pro Asn Ile Lys Cys 1010 1015 1020 | 3072 |
| ccc aaa ggc ggc ctg gca gca tac agc acc tct gtg aac ttg act tca Pro Lys Gly Gly Leu Ala Ala Tyr Ser Thr Ser Val Asn Leu Thr Ser 1025 1030 1035 1040 | 3120 |
| gat ggc cag gtt tta gcc tcc agg ttc atg gcc tat cac aag ccc ctg Asp Gly Gln Val Leu Ala Ser Arg Phe Met Ala Tyr His Lys Pro Leu 1045 1050 1055 | 3168 |
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| gct ttt gag gtc ttc ccc tac acg atc acc aat gtg ttt tat gag cag Ala Phe Glu Val Phe Pro Tyr Thr Ile Thr Asn Val Phe Tyr Glu Gln 1090 1095 1100 | 3312 |

| | |
|---|------|
| tac ctg acc atc ctc cct gag ggg ctc ttc atg ctc agc ctc tgc ctt Tyr Leu Thr Ile Leu Pro Glu Gly Leu Phe Met Leu Ser Leu Cys Leu 1105 1110 1115 1120 | 3360 |
| gtg ccc acc ttc gct gtc tcc tgc ctc ctg ctg ggc ctg gac ctg cgc Val Pro Thr Phe Ala Val Ser Cys Leu Leu Leu Gly Leu Asp Leu Arg 1125 1130 1135 | 3408 |
| tcc ggc ctc ctc aac ctg ctc tcc att gtc atg atc ctc gtg gac act Ser Gly Leu Leu Asn Leu Leu Ser Ile Val Met Ile Leu Val Asp Thr 1140 1145 1150 | 3456 |
| gtc ggc ttc atg gcc ctg tgg ggc atc agt tac aat gct gtg tcc ctc Val Gly Phe Met Ala Leu Trp Gly Ile Ser Tyr Asn Ala Val Ser Leu 1155 1160 1165 | 3504 |
| atc aac ctg gtc tcg gcg gtg ggc atg tct gtg gag ttt gtg tcc cac Ile Asn Leu Val Ser Ala Val Gly Met Ser Val Glu Phe Val Ser His 1170 1175 1180 | 3552 |
| att acc cgc tcc ttt gcc atc agc acc aag ccc acc tgg ctg gag agg Ile Thr Arg Ser Phe Ala Ile Ser Thr Lys Pro Thr Trp Leu Glu Arg 1185 1190 1195 1200 | 3600 |
| gcc aaa gag gcc acc atc tct atg gga agt gcg gtg ttt gca ggt gtg Ala Lys Glu Ala Thr Ile Ser Met Gly Ser Ala Val Phe Ala Gly Val 1205 1210 1215 | 3648 |
| gcc atg acc aac ctg cct ggc atc ctt gtc ctg ggc ctc gcc aag gcc Ala Met Thr Asn Leu Pro Gly Ile Leu Val Leu Gly Leu Ala Lys Ala 1220 1225 1230 | 3696 |
| cag ctc att cag atc ttc ttc ttc cgc ctc aac ctc ctg atc act ctg Gln Leu Ile Gln Ile Phe Phe Phe Arg Leu Asn Leu Leu Ile Thr Leu 1235 1240 1245 | 3744 |
| ctg ggc ctg ctg cat ggc ttg gtc ttc ctg ccc gtc atc ctc agc tac Leu Gly Leu Leu His Gly Leu Val Phe Leu Pro Val Ile Leu Ser Tyr 1250 1255 1260 | 3792 |
| gtg ggg cct gac gtt aac ccg gct ctg gca ctg gag cag aag cgg gct Val Gly Pro Asp Val Asn Pro Ala Leu Ala Leu Glu Gln Lys Arg Ala 1265 1270 1275 1280 | 3840 |
| gag gag gcg gtg gca gca gtc atg gtg gcc tct tgc cca aat cac ccc Glu Glu Ala Val Ala Ala Val Met Val Ala Ser Cys Pro Asn His Pro 1285 1290 1295 | 3888 |
| tcc cga gtc tcc aca gct gac aac atc tat gtc aac cac agc ttt gaa Ser Arg Val Ser Thr Ala Asp Asn Ile Tyr Val Asn His Ser Phe Glu 1300 1305 1310 | 3936 |
| ggc tct atc aaa ggt gct ggt gcc atc agc aac ttc ttg ccc aac aat Gly Ser Ile Lys Gly Ala Gly Ala Ile Ser Asn Phe Leu Pro Asn Asn 1315 1320 1325 | 3984 |
| ggg cgg cag ttc tga tacagccaga ggccctgtct aggcctctatg gccctgaacc Gly Arg Gln Phe * 1330 | 4039 |
| aaaggggttat ggggatcttc cttgtgactg ccccttgaca cagccctcc tcaaattcta | 4099 |
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 tttattaatt tacttccaaa cgcaacgaaa ggtccatgga caatttgtgg gccatttaat 180
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 ctgctcccca gctctcggat acagccgaca cc atg ggt ttc gga gac ctg aaa 413
 Met Gly Phe Gly Asp Leu Lys
 1 5
 agc cct gcc ggc ctc cag gtg ctc aac gat tac ctg gcg gac aag agc 461
 Ser Pro Ala Gly Leu Gln Val Leu Asn Asp Tyr Leu Ala Asp Lys Ser
 10 15 20
 tac atc gag ggg tat gtg cca tca caa gca gat gtg gca gta ttt gaa 509
 Tyr Ile Glu Gly Tyr Val Pro Ser Gln Ala Asp Val Ala Val Phe Glu
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 gcc gtg tcc agc cca ccg cct gcc gac ttg tgt cat gcc cta cgt tgg 557
 Ala Val Ser Ser Pro Pro Pro Ala Asp Leu Cys His Ala Leu Arg Trp
 40 45 50 55
 tat aat cac atc aag tct tac gaa aag gaa aag gcc agc ctg cca gga 605
 Tyr Asn His Ile Lys Ser Tyr Glu Lys Glu Lys Ala Ser Leu Pro Gly
 60 65 70
 gtg aag aaa gct ttg ggc aaa tat ggt cct gcc gat gtg gaa gac act 653
 Val Lys Lys Ala Leu Gly Lys Tyr Gly Pro Ala Asp Val Glu Asp Thr
 75 80 85
 aca gga agt gga gct aca gat agt aaa gat gat gat gac att gac ctc 701

| | | | | | | | | | | | | | | | | | |
|-----------|-----|------------|-----|------------|-----|----------|-----|-----|-----|-----|----------|------------|-----|-----|-----|------|--|
| Thr | Gly | Ser | Gly | Ala | Thr | Asp | Ser | Lys | Asp | Asp | Asp | Asp | Ile | Asp | Leu | | |
| | | 90 | | | | | 95 | | | | | 100 | | | | | |
| ttt | gga | tct | gat | gat | gag | gag | gaa | agt | gaa | gaa | gca | aag | agg | cta | agg | 749 | |
| Phe | Gly | Ser | Asp | Asp | Glu | Glu | Glu | Ser | Glu | Glu | Ala | Lys | Arg | Leu | Arg | | |
| | 105 | | | | | 110 | | | | | 115 | | | | | | |
| gaa | gaa | cgt | ctt | gca | caa | tat | gaa | tca | aag | aaa | gcc | aaa | aaa | cct | gca | 797 | |
| Glu | Glu | Arg | Leu | Ala | Gln | Tyr | Glu | Ser | Lys | Lys | Ala | Lys | Lys | Pro | Ala | | |
| | 120 | | | | 125 | | | | | 130 | | | | | 135 | | |
| ctt | gtt | gcc | aag | tct | tcc | atc | tta | cta | gat | gtg | aaa | cct | tgg | gat | gat | 845 | |
| Leu | Val | Ala | Lys | Ser | Ser | Ile | Leu | Leu | Asp | Val | Lys | Pro | Trp | Asp | Asp | | |
| | | | | 140 | | | | | 145 | | | | | 150 | | | |
| gag | aca | gat | atg | gcg | aaa | tta | gag | gag | tgc | gtc | aga | agc | att | caa | gca | 893 | |
| Glu | Thr | Asp | Met | Ala | Lys | Leu | Glu | Glu | Cys | Val | Arg | Ser | Ile | Gln | Ala | | |
| | | | 155 | | | | | 160 | | | | | 165 | | | | |
| gac | ggc | tta | gtc | tgg | ggc | tca | tct | aaa | cta | gtt | cca | gtg | gga | tac | gga | 941 | |
| Asp | Gly | Leu | Val | Trp | Gly | Ser | Ser | Lys | Leu | Val | Pro | Val | Gly | Tyr | Gly | | |
| | | 170 | | | | 175 | | | | | | 180 | | | | | |
| att | aag | aaa | ctt | caa | ata | cag | tgt | gta | gtt | gaa | gat | gat | aaa | gtt | gga | 989 | |
| Ile | Lys | Lys | Leu | Gln | Ile | Gln | Cys | Val | Val | Glu | Asp | Asp | Lys | Val | Gly | | |
| | 185 | | | | | 190 | | | | | 195 | | | | | | |
| aca | gat | atg | ctg | gag | gag | cag | atc | act | gct | ttt | gag | gac | tat | gtg | cag | 1037 | |
| Thr | Asp | Met | Leu | Glu | Glu | Gln | Ile | Thr | Ala | Phe | Glu | Asp | Tyr | Val | Gln | | |
| | 200 | | | | 205 | | | | | 210 | | | | | 215 | | |
| tcc | atg | gat | gtg | gct | gct | ttc | aac | aag | atc | taa | aatccatc | ctggatcatg | | | | 1088 | |
| Ser | Met | Asp | Val | Ala | Ala | Phe | Asn | Lys | Ile | * | | | | | | | |
| | | | | 220 | | | | | 225 | | | | | | | | |
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| atagtcaaat | taagaactct | gtcac | atg | ata | aat | atg | tgt | ttt | cag | gaa | ctc | | | | | 112 | |
| | | | Met | Ile | Asn | Met | Cys | Phe | Gln | Glu | Leu | | | | | | |
| | | | 1 | | | | 5 | | | | | | | | | | |
| gta | aca | ttc | agg | gat | gtg | gcc | ata | gaa | ttc | tcc | cct | gaa | gag | tgg | aaa | 160 | |
| Val | Thr | Phe | Arg | Asp | Val | Ala | Ile | Glu | Phe | Ser | Pro | Glu | Glu | Trp | Lys | | |
| | 10 | | | | | 15 | | | | 20 | | | | | 25 | | |
| tgt | ctg | gac | cct | gcc | cag | cag | aat | ttg | tat | aga | gat | gtg | atg | ttg | gag | 208 | |
| Cys | Leu | Asp | Pro | Ala | Gln | Gln | Asn | Leu | Tyr | Arg | Asp | Val | Met | Leu | Glu | | |
| | | | | 30 | | | | | 35 | | | | | | 40 | | |

| | |
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| aac tac agg aac ctg gtc tcc ctg ggt ttt gtg atc tct aac cca gac Asn Tyr Arg Asn Leu Val Ser Leu Gly Phe Val Ile Ser Asn Pro Asp 45 50 55 | 256 |
| ctg gtc acc tgt ctg gag caa ata aaa gag ccc tgc aat ttg aag ata Leu Val Thr Cys Leu Glu Gln Ile Lys Glu Pro Cys Asn Leu Lys Ile 60 65 70 | 304 |
| cat gag aca gca gcc aaa ccc cca gct ata tgt tct cct ttc agc caa His Glu Thr Ala Ala Lys Pro Pro Ala Ile Cys Ser Pro Phe Ser Gln 75 80 85 | 352 |
| gac ctt tca cca gtg cag ggg ata gaa gat tca ttc cac aaa ctt ata Asp Leu Ser Pro Val Gln Gly Ile Glu Asp Ser Phe His Lys Leu Ile 90 95 100 105 | 400 |
| ctg aaa aga tac gag aaa tgt gga cat gag aat tta caa tta aga aaa Leu Lys Arg Tyr Glu Lys Cys Gly His Glu Asn Leu Gln Leu Arg Lys 110 115 120 | 448 |
| ggc tgt aaa cgt gtg aat gag tgt aag gtg cag aaa gga gtt aat aat Gly Cys Lys Arg Val Asn Glu Cys Lys Val Gln Lys Gly Val Asn Asn 125 130 135 | 496 |
| gga gtt tac cag tgc ttg tca act acc cag agc aaa ata ttt caa tgt Gly Val Tyr Gln Cys Leu Ser Thr Thr Gln Ser Lys Ile Phe Gln Cys 140 145 150 | 544 |
| aat aca tgt gtt aaa gtt ttt agt aaa ttt tca aat tca aac aaa cat Asn Thr Cys Val Lys Val Phe Ser Lys Phe Ser Asn Ser Asn Lys His 155 160 165 | 592 |
| aag ata aga cat act gga gag aaa ccc ttt aaa tgt aca gaa tgt ggc Lys Ile Arg His Thr Gly Glu Lys Pro Phe Lys Cys Thr Glu Cys Gly 170 175 180 185 | 640 |
| aga tcg ttt tac atg tca cac cta act caa cat aca gga att cat gct Arg Ser Phe Tyr Met Ser His Leu Thr Gln His Thr Gly Ile His Ala 190 195 200 | 688 |
| gga gag aaa ccc tac aat gtg aaa aat gtg gca aag ctt tac agg gtc Gly Glu Lys Pro Tyr Asn Val Lys Asn Val Ala Lys Leu Tyr Arg Val 205 210 215 | 736 |
| cac aat cca ctg aat gaa cat aag aga att cat act gga gag aaa ccc His Asn Pro Leu Asn Glu His Lys Arg Ile His Thr Gly Glu Lys Pro 220 225 230 | 784 |
| tac aca tgt gaa gaa tgt ggc aaa gct tta gac gtt ctg aac gaa cat Tyr Thr Cys Glu Glu Cys Gly Lys Ala Leu Asp Val Leu Asn Glu His 235 240 245 | 832 |
| aag aaa att cat act gga gag aaa ccc tac aaa tgt gaa gaa tgt ggc Lys Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly 250 255 260 265 | 880 |
| aaa gcc ttt aca agg tcc aca aca ctg aat gaa cac aag aaa att cat Lys Ala Phe Thr Arg Ser Thr Thr Leu Asn Glu His Lys Lys Ile His 270 275 280 | 928 |
| act gga gag aaa ccc tac aaa tgt aaa gaa tgt ggc aaa gcc ttt aga Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Arg 285 290 295 | 976 |

| | |
|---|------|
| tgg tcc aca agc ctg aat gaa cat aag aat att cat act gga gag aaa | 1024 |
| Trp Ser Thr Ser Leu Asn Glu His Lys Asn Ile His Thr Gly Glu Lys | |
| 300 305 310 | |
| ccc tac aaa tgt aaa gaa tgt ggc aaa gcc ttt aga cag tcc agg agc | 1072 |
| Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Arg Gln Ser Arg Ser | |
| 315 320 325 | |
| ctg aat gaa cat aaa aat att cat act ggc gaa aaa ccc tac aca tgt | 1120 |
| Leu Asn Glu His Lys Asn Ile His Thr Gly Glu Lys Pro Tyr Thr Cys | |
| 330 335 340 345 | |
| gaa aaa tgt ggc aaa gct ttt aac caa tcc tca agt ctt att ata cac | 1168 |
| Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Ser Leu Ile Ile His | |
| 350 355 360 | |
| agg agc att cat tct gaa caa aaa ctt tac aaa tgt gaa gaa tgt ggc | 1216 |
| Arg Ser Ile His Ser Glu Gln Lys Leu Tyr Lys Cys Glu Glu Cys Gly | |
| 365 370 375 | |
| aaa gcc ttt act tgg tcc tca tcc ctt aat aaa cat aag aga att cat | 1264 |
| Lys Ala Phe Thr Trp Ser Ser Ser Leu Asn Lys His Lys Arg Ile His | |
| 380 385 390 | |
| act gga gag aaa ccc tac aca tgt gaa gaa tgt ggc aaa gct ttt tat | 1312 |
| Thr Gly Glu Lys Pro Tyr Thr Cys Glu Glu Cys Gly Lys Ala Phe Tyr | |
| 395 400 405 | |
| agg tcc tca cac ctt gct aaa cat aag aga att cat act gga gag aaa | 1360 |
| Arg Ser Ser His Leu Ala Lys His Lys Arg Ile His Thr Gly Glu Lys | |
| 410 415 420 425 | |
| ccc tac acg tgc gaa gaa tgt ggc aaa gct ttt aac caa tcc tca act | 1408 |
| Pro Tyr Thr Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr | |
| 430 435 440 | |
| ctt ata tta cac aag aga atc cat tct gga caa aaa cct tac aaa tgt | 1456 |
| Leu Ile Leu His Lys Arg Ile His Ser Gly Gln Lys Pro Tyr Lys Cys | |
| 445 450 455 | |
| gaa gaa tgt ggc aaa gcc ttt aca cgg tcc aca aca ctg aac gaa cat | 1504 |
| Glu Glu Cys Gly Lys Ala Phe Thr Arg Ser Thr Thr Leu Asn Glu His | |
| 460 465 470 | |
| aag aaa att cat act ggc gag aaa ccc tac aaa tgt gaa gaa tgt ggc | 1552 |
| Lys Lys Ile His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys Gly | |
| 475 480 485 | |
| aaa gct ttc ata tgg tcc gca agc ctg aat gaa cat aag aat att cat | 1600 |
| Lys Ala Phe Ile Trp Ser Ala Ser Leu Asn Glu His Lys Asn Ile His | |
| 490 495 500 505 | |
| act gga gag aaa ccc tac aaa tgt aaa gaa tgt ggc aaa gct ttt aac | 1648 |
| Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn | |
| 510 515 520 | |
| caa tcc tca ggc ctt att ata cac agg agc att cat tct gaa caa aaa | 1696 |
| Gln Ser Ser Gly Leu Ile Ile His Arg Ser Ile His Ser Glu Gln Lys | |
| 525 530 535 | |
| ctt tac aaa tgt gaa gaa tgt ggc aaa gcc ttt act cgg tcc aca gcc | 1744 |
| Leu Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Thr Arg Ser Thr Ala | |
| 540 545 550 | |

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ctg aat gaa cat aag aaa att cat tct gga gag aaa ccc tac aaa tgc      1792
Leu Asn Glu His Lys Lys Ile His Ser Gly Glu Lys Pro Tyr Lys Cys
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aaa gaa tgt ggc aaa gcc tat aac tta tcc tca acc ctt act aaa cat      1840
Lys Glu Cys Gly Lys Ala Tyr Asn Leu Ser Ser Thr Leu Thr Lys His
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Lys Arg Ile His Thr Gly Glu Lys Pro Phe Thr Cys Glu Glu Cys Gly
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Lys Ala Phe Asn Trp Ser Ser Ser Leu Thr Lys His Lys Ile Ile His
    605                                610                                615

act gga gag aaa tcc tac aaa tgt gaa gaa tgt ggc aaa ggt ttt aat      1984
Thr Gly Glu Lys Ser Tyr Lys Cys Glu Glu Cys Gly Lys Gly Phe Asn
    620                                625                                630

cgg ccc tca acc ctt act gta cac aag cga ttc ata ctg gca agg aac      2032
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ata gtt gaa tga
Ile Val Glu *
650

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gttactgtgt ctccagaaac acat      atg gac ctc aca aag ggc tgt gtg acc      51
Met Asp Leu Thr Lys Gly Cys Val Thr
    1                                5

ttt gag gac atc gcc att tac ttc tca cag gac gag tgg gga ctt ctt      99
Phe Glu Asp Ile Ala Ile Tyr Phe Ser Gln Asp Glu Trp Gly Leu Leu
    10                                15                                20                                25

gat gag gct cag aga ctc ctg tac ctt gaa gtg atg ctg gag aac ttt      147
Asp Glu Ala Gln Arg Leu Leu Tyr Leu Glu Val Met Leu Glu Asn Phe
    30                                35                                40

gcc ctt gta gcc tca ctg ggt tgt ggc cat gga aca gag gat gaa gag      195
Ala Leu Val Ala Ser Leu Gly Cys Gly His Gly Thr Glu Asp Glu Glu
    45                                50                                55

aca cct tct gac cag aat gtt tct gta gga gtg tca cag tca aag gca      243
Thr Pro Ser Asp Gln Asn Val Ser Val Gly Val Ser Gln Ser Lys Ala
    60                                65                                70

ggt tca tcc aca cag aag act caa tcc tgt gag atg tgt gtc cca gtc      291
Gly Ser Ser Thr Gln Lys Thr Gln Ser Cys Glu Met Cys Val Pro Val

```

| 75 | 80 | 85 | |
|---|-----|-----|------|
| ctg aaa gat att ttg cat cta gct gat ctc cct ggg cag aaa cca tac | | | 339 |
| Leu Lys Asp Ile Leu His Leu Ala Asp Leu Pro Gly Gln Lys Pro Tyr | | | |
| 90 | 95 | 100 | 105 |
| ttg gtt gga gaa tgt aca aac cat cac cag cac cag aag cat cac agt | | | 387 |
| Leu Val Gly Glu Cys Thr Asn His His Gln His Gln Lys His His Ser | | | |
| | 110 | 115 | 120 |
| gca aag aaa tcc ttg aag agg gac atg gac aga gcc tca tat gtg aag | | | 435 |
| Ala Lys Lys Ser Leu Lys Arg Asp Met Asp Arg Ala Ser Tyr Val Lys | | | |
| | 125 | 130 | 135 |
| tgc tgc cta ttc tgt atg tca ttg aag ccc ttt cgc aaa tgg gag gtt | | | 483 |
| Cys Cys Leu Phe Cys Met Ser Leu Lys Pro Phe Arg Lys Trp Glu Val | | | |
| | 140 | 145 | 150 |
| gga aag gac ctt cca gcc atg ttg cgg ctt ctg agg tcc ctg gtc ttt | | | 531 |
| Gly Lys Asp Leu Pro Ala Met Leu Arg Leu Leu Arg Ser Leu Val Phe | | | |
| | 155 | 160 | 165 |
| cct gga ggc aag aaa ccc ggc aca att act gaa tgt ggg gag gac att | | | 579 |
| Pro Gly Gly Lys Lys Pro Gly Thr Ile Thr Glu Cys Gly Glu Asp Ile | | | |
| 170 | 175 | 180 | 185 |
| cgc agt caa aaa agt cat tac aag tca ggt gaa tgt ggg aag gct tcc | | | 627 |
| Arg Ser Gln Lys Ser His Tyr Lys Ser Gly Glu Cys Gly Lys Ala Ser | | | |
| | 190 | 195 | 200 |
| agg cac aaa cac act cct gtt tac cat cca aga gtc tac act gga aaa | | | 675 |
| Arg His Lys His Thr Pro Val Tyr His Pro Arg Val Tyr Thr Gly Lys | | | |
| | 205 | 210 | 215 |
| aag ctt tat gag tgt agc aaa tgt ggg aaa gcc ttc cgt ggc aag tac | | | 723 |
| Lys Leu Tyr Glu Cys Ser Lys Cys Gly Lys Ala Phe Arg Gly Lys Tyr | | | |
| | 220 | 225 | 230 |
| tca ctt gtt cag cac cag aga gtc cat act gga gaa agg cct tgg gag | | | 771 |
| Ser Leu Val Gln His Gln Arg Val His Thr Gly Glu Arg Pro Trp Glu | | | |
| | 235 | 240 | 245 |
| tgc aat gaa tgt gga aaa ttc ttt agc caa acc tcc cac ctg aat gat | | | 819 |
| Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Thr Ser His Leu Asn Asp | | | |
| 250 | 255 | 260 | 265 |
| cat cgg aga atc cac acc gga gaa agg cct tat gag tgc agc gaa tgt | | | 867 |
| His Arg Arg Ile His Thr Gly Glu Arg Pro Tyr Glu Cys Ser Glu Cys | | | |
| | 270 | 275 | 280 |
| gga aaa tta ttt aga caa aac tcc agc ctt gtt gac cac cag aaa ata | | | 915 |
| Gly Lys Leu Phe Arg Gln Asn Ser Ser Leu Val Asp His Gln Lys Ile | | | |
| | 285 | 290 | 295 |
| cac act gga gca agg cct tat gag tgt agc cag tgt ggg aaa tcc ttt | | | 963 |
| His Thr Gly Ala Arg Pro Tyr Glu Cys Ser Gln Cys Gly Lys Ser Phe | | | |
| | 300 | 305 | 310 |
| agc caa aaa gcc acc ctt gtt aaa cac caa aga gtt cac act gga gaa | | | 1011 |
| Ser Gln Lys Ala Thr Leu Val Lys His Gln Arg Val His Thr Gly Glu | | | |
| | 315 | 320 | 325 |
| agg cct tat aag tgt ggt gaa tgt ggg aat tcc ttt agt caa agt gcc | | | 1059 |
| Arg Pro Tyr Lys Cys Gly Glu Cys Gly Asn Ser Phe Ser Gln Ser Ala | | | |

| 330 | 335 | 340 | 345 | |
|---|-----|-----|-----|------|
| att ctt aat caa cac cga aga att cac act gga gca aag cct tat gag | | | | 1107 |
| Ile Leu Asn Gln His Arg Arg Ile His Thr Gly Ala Lys Pro Tyr Glu | | | | |
| | 350 | 355 | 360 | |
| tgt ggc cag tgt ggg aaa tcc ttt agt caa aaa gct acc ctc att aaa | | | | 1155 |
| Cys Gly Gln Cys Gly Lys Ser Phe Ser Gln Lys Ala Thr Leu Ile Lys | | | | |
| | 365 | 370 | 375 | |
| cac cag aga gtt cac act gga gaa agg cct tat aag tgt ggt gac tgt | | | | 1203 |
| His Gln Arg Val His Thr Gly Glu Arg Pro Tyr Lys Cys Gly Asp Cys | | | | |
| | 380 | 385 | 390 | |
| ggg aaa tcc ttt agt caa agc tcc atc ctt att caa cac cgg aga att | | | | 1251 |
| Gly Lys Ser Phe Ser Gln Ser Ser Ile Leu Ile Gln His Arg Arg Ile | | | | |
| | 395 | 400 | 405 | |
| cat act gga gca agg cct tat gag tgt ggc cag tgt gga aag tcc ttt | | | | 1299 |
| His Thr Gly Ala Arg Pro Tyr Glu Cys Gly Gln Cys Gly Lys Ser Phe | | | | |
| | 410 | 415 | 420 | 425 |
| agc caa aag tct ggt ctc att caa cac caa gtg gtt cac act gga gaa | | | | 1347 |
| Ser Gln Lys Ser Gly Leu Ile Gln His Gln Val Val His Thr Gly Glu | | | | |
| | 430 | 435 | 440 | |
| agg cct tat gag tgc aac aaa tgt ggg aat tcc ttt agc caa tgc tcc | | | | 1395 |
| Arg Pro Tyr Glu Cys Asn Lys Cys Gly Asn Ser Phe Ser Gln Cys Ser | | | | |
| | 445 | 450 | 455 | |
| agc ctc ata cat cac caa aaa tgt cat aac aca tag | | | | 1431 |
| Ser Leu Ile His His Gln Lys Cys His Asn Thr * | | | | |
| | 460 | 465 | | |

<210> 851
 <211> 865
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (253) .. (618)

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| atccagtagg ggaatcagat tgtggccaaa ggtagtgtat taactctaga aaaggagatt | 120 |
| atatctacag ttcttcaaac aatttttagat ttttcttttc aaggacagct agagaagata | 180 |
| atgacataat aactattttcc ttttttagga tctgaatcta aaaatgggtga agcagacagt | 240 |
| tcagataaag aa atg aaa cat ggg caa aaa tct ccc act gga aaa caa | 288 |
| Met Lys His Gly Gln Lys Ser Pro Thr Gly Lys Gln | |
| 1 5 10 | |
| aca agt cag cac tta aaa cga tta aaa aag tct ggt tta ggg cac ttg | 336 |
| Thr Ser Gln His Leu Lys Arg Leu Lys Lys Ser Gly Leu Gly His Leu | |
| 15 20 25 | |

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aaa tgg acc aaa gct gag gac att gac ata gaa acc cca gga tct att      384
Lys Trp Thr Lys Ala Glu Asp Ile Asp Ile Glu Thr Pro Gly Ser Ile
      30              35              40

ctt gtc aac act aac ttg agg gca tta ata aat aaa cat acg ttt gct      432
Leu Val Asn Thr Asn Leu Arg Ala Leu Ile Asn Lys His Thr Phe Ala
      45              50              55              60

tcc tta cct cag cat ttt caa caa tac ctc ctg ctt ttg ctc cca gaa      480
Ser Leu Pro Gln His Phe Gln Gln Tyr Leu Leu Leu Leu Leu Pro Glu
      65              70              75

gtg gat agg cag atg gga agt gat gga att tta cgc ctc agt act tca      528
Val Asp Arg Gln Met Gly Ser Asp Gly Ile Leu Arg Leu Ser Thr Ser
      80              85              90

gct cta aat aat gaa ttc ttt gca tat gca gca caa ggg tgg aaa cag      576
Ala Leu Asn Asn Glu Phe Phe Ala Tyr Ala Ala Gln Gly Trp Lys Gln
      95              100             105

cga ctg gca gaa ggt aaa ttt gta ttt tct att att atg tga catattg      625
Arg Leu Ala Glu Gly Lys Phe Val Phe Ser Ile Ile Met *
      110             115             120

gagtacacat accgtactga gcttgtacct ttctctgatt tttcagtctt ttccccgaca      685

cagtacactt taatttagta aaaactcata tccctttcca aatgagttca ctgattcttt      745

tggtatactt gacattattg atgtcagata tttttgaaga aagcataatt ttatcttgga      805

catcataaaa tttttgatgc agcaacattt tcttgccgat ggtaatttta atgacattgt      865

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<210> 852
 <211> 2229
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (99)..(1976)

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aagagggcagg aggaacagtg tatccacagc gtgggacc      atg cca ggc aca aaa      113
                                         Met Pro Gly Thr Lys
                                         1              5

cgg ttt caa cat gtc att gag acc ccg gag cct ggc aag tgg gag ttg      161
Arg Phe Gln His Val Ile Glu Thr Pro Glu Pro Gly Lys Trp Glu Leu
      10              15              20

tct ggg tac gag gca gct gtg cca atc acg gag aag tca aac cca ctg      209
Ser Gly Tyr Glu Ala Ala Val Pro Ile Thr Glu Lys Ser Asn Pro Leu
      25              30              35

acc cag gat cta gac aaa gca gat gct gag aac att gtt cga ctg cta      257
Thr Gln Asp Leu Asp Lys Ala Asp Ala Glu Asn Ile Val Arg Leu Leu
      40              45              50

ggg caa tgt gat gct gag atc ttc cag gag gag ggg caa gcc ctg tcc      305

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| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|--|
| Gly | Gln | Cys | Asp | Ala | Glu | Ile | Phe | Gln | Glu | Glu | Gly | Gln | Ala | Leu | Ser | | |
| 55 | | | | | | 60 | | | | | 65 | | | | | | |
| aca | tac | cag | aga | ctc | tac | agc | gaa | tcc | att | ctg | acc | acc | atg | gta | cag | 353 | |
| Thr | Tyr | Gln | Arg | Leu | Tyr | Ser | Glu | Ser | Ile | Leu | Thr | Thr | Met | Val | Gln | | |
| 70 | | | | | 75 | | | | | 80 | | | | | 85 | | |
| gtg | gct | ggg | aaa | gtt | cag | gaa | gtg | ctg | aag | gag | cca | gat | ggg | ggg | ctg | 401 | |
| Val | Ala | Gly | Lys | Val | Gln | Glu | Val | Leu | Lys | Glu | Pro | Asp | Gly | Gly | Leu | | |
| | | | | 90 | | | | 95 | | | | | 100 | | | | |
| gtt | gtg | ctg | agt | gga | ggg | ggc | acc | tct | ggc | cgg | atg | gca | ttc | ctc | atg | 449 | |
| Val | Val | Leu | Ser | Gly | Gly | Gly | Thr | Ser | Gly | Arg | Met | Ala | Phe | Leu | Met | | |
| | | | 105 | | | | | 110 | | | | | 115 | | | | |
| tcg | gtg | tcc | ttt | aat | cag | ctg | atg | aaa | ggc | ctg | gga | cag | aaa | cct | ctt | 497 | |
| Ser | Val | Ser | Phe | Asn | Gln | Leu | Met | Lys | Gly | Leu | Gly | Gln | Lys | Pro | Leu | | |
| | | 120 | | | | | 125 | | | | | 130 | | | | | |
| tac | acc | tac | ctc | att | gca | ggc | ggc | gac | agg | tct | gtg | gtg | gcc | tct | agg | 545 | |
| Tyr | Thr | Tyr | Leu | Ile | Ala | Gly | Gly | Asp | Arg | Ser | Val | Val | Ala | Ser | Arg | | |
| | 135 | | | | | 140 | | | | | 145 | | | | | | |
| gag | ggg | aca | gaa | gat | agt | gcc | ttg | cac | ggg | att | gag | gaa | ctg | aag | aag | 593 | |
| Glu | Gly | Thr | Glu | Asp | Ser | Ala | Leu | His | Gly | Ile | Glu | Glu | Leu | Lys | Lys | | |
| 150 | | | | | 155 | | | | 160 | | | | | 165 | | | |
| gtg | gct | gcc | ggg | aag | aag | aga | gtg | att | gtc | att | ggc | att | tct | gtg | gga | 641 | |
| Val | Ala | Ala | Gly | Lys | Lys | Arg | Val | Ile | Val | Ile | Gly | Ile | Ser | Val | Gly | | |
| | | | 170 | | | | | 175 | | | | | | 180 | | | |
| ctc | tct | gct | ccc | ttt | gtg | gca | ggc | cag | atg | gac | tgc | tgc | atg | aac | aac | 689 | |
| Leu | Ser | Ala | Pro | Phe | Val | Ala | Gly | Gln | Met | Asp | Cys | Cys | Met | Asn | Asn | | |
| | | | 185 | | | | | 190 | | | | | 195 | | | | |
| aca | gct | gtc | ttc | ttg | cca | gtc | ctg | gtt | ggc | ttc | aat | cca | gtg | agc | atg | 737 | |
| Thr | Ala | Val | Phe | Leu | Pro | Val | Leu | Val | Gly | Phe | Asn | Pro | Val | Ser | Met | | |
| | | 200 | | | | | 205 | | | | | 210 | | | | | |
| gcc | aga | aat | gac | ccc | att | gaa | gac | tgg | agt | tca | aca | ttc | cga | caa | gta | 785 | |
| Ala | Arg | Asn | Asp | Pro | Ile | Glu | Asp | Trp | Ser | Ser | Thr | Phe | Arg | Gln | Val | | |
| | 215 | | | | | 220 | | | | | 225 | | | | | | |
| gca | gag | cgg | atg | cag | aaa | atg | cag | gag | aaa | cag | aaa | gct | ttt | gtg | ctc | 833 | |
| Ala | Glu | Arg | Met | Gln | Lys | Met | Gln | Glu | Lys | Gln | Lys | Ala | Phe | Val | Leu | | |
| 230 | | | | 235 | | | | | 240 | | | | | 245 | | | |
| aat | cct | gcc | atc | ggg | ccc | gag | ggc | ctc | agc | ggc | tcc | tcc | cgg | atg | aaa | 881 | |
| Asn | Pro | Ala | Ile | Gly | Pro | Glu | Gly | Leu | Ser | Gly | Ser | Ser | Arg | Met | Lys | | |
| | | | 250 | | | | | 255 | | | | | | 260 | | | |
| ggc | gga | agt | gcc | acc | aag | att | ctg | ctg | gaa | acc | ctg | tta | tta | gca | gcc | 929 | |
| Gly | Gly | Ser | Ala | Thr | Lys | Ile | Leu | Leu | Glu | Thr | Leu | Leu | Leu | Ala | Ala | | |
| | | | 265 | | | | 270 | | | | | | 275 | | | | |
| cat | aag | act | gtg | gac | cag | ggc | att | gca | gca | tct | caa | aga | tgc | ctc | ctg | 977 | |
| His | Lys | Thr | Val | Asp | Gln | Gly | Ile | Ala | Ala | Ser | Gln | Arg | Cys | Leu | Leu | | |
| | | 280 | | | | 285 | | | | | | 290 | | | | | |
| gaa | atc | ttg | cgg | aca | ttt | gag | cga | gct | cat | cag | gtg | acc | tac | agc | caa | 1025 | |
| Glu | Ile | Leu | Arg | Thr | Phe | Glu | Arg | Ala | His | Gln | Val | Thr | Tyr | Ser | Gln | | |
| | 295 | | | | | 300 | | | | 305 | | | | | | | |
| agc | ccc | aag | att | gcc | acc | ctg | atg | aag | agt | gtc | agc | acc | agt | ctg | gag | 1073 | |

2367

Glu Lys Glu Gln Val Ile Pro Ile Ala Leu Leu Ser Leu Leu Phe Arg
 570 575 580
 tgc tcg atc act gag gct cag gca cac ctg gct gca gct cct tct gtc 1889
 Cys Ser Ile Thr Glu Ala Gln Ala His Leu Ala Ala Ala Pro Ser Val
 585 590 595
 tgt gag gct gtc agg agt gct ctt gct ggg cca ggt cag aag cgc act 1937
 Cys Glu Ala Val Arg Ser Ala Leu Ala Gly Pro Gly Gln Lys Arg Thr
 600 605 610
 gcg gac ccc ctc gag atc cta gag cct gac gtt cag tga acccatgttt 1986
 Ala Asp Pro Leu Glu Ile Leu Glu Pro Asp Val Gln *
 615 620 625
 ctgggtgggt gaaaggggcc caaccctgcc cacttcagcc cagcccgccc aaggggactt 2046
 gtgccagcag aacatgtggg aggaagaagc cccgtttcca gggcatccgc agcccagggt 2106
 agggagaaat attctctcca ctttggggga gagttcttgc tctcgaccta gtggtttcta 2166
 ctctcacga cttattctga tttcagaaat aaaatgaaat gtcttatttt ggaaaaaaaa 2226
 aaa 2229

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 <213> Homo sapiens

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 <222> (137) .. (1264)

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 gcgtctcaag cagaca atg gcc tcg gac ccc cac agc ctg gag gag ttt 169
 Met Ala Ser Asp Pro His Ser Leu Glu Glu Phe
 1 5 10
 tgc tcc gac ccg cac gct gtg gca ggt gcc ctc aag tcc tat ctg cgg 217
 Cys Ser Asp Pro His Ala Val Ala Gly Ala Leu Lys Ser Tyr Leu Arg
 15 20 25
 gag ctg cca gag cct ctg atg acc ttc gac ctc tat gat gac tgg atg 265
 Glu Leu Pro Glu Pro Leu Met Thr Phe Asp Leu Tyr Asp Asp Trp Met
 30 35 40
 agg gca gcc agc ctg aag gag cca ggg gcc cgg ctg cag gcc ctc caa 313
 Arg Ala Ala Ser Leu Lys Glu Pro Gly Ala Arg Leu Gln Ala Leu Gln
 45 50 55
 gag gtg tgc agc cgc cta ccc ccc gag aac ctc agc aac ctc agg tac 361
 Glu Val Cys Ser Arg Leu Pro Pro Glu Asn Leu Ser Asn Leu Arg Tyr
 60 65 70 75
 ctg atg aag ttc ctg gca cgg ctg gcc gag gag cag gag gtg aac aag 409
 Leu Met Lys Phe Leu Ala Arg Leu Ala Glu Glu Gln Glu Val Asn Lys

| | 80 | 85 | 90 | |
|---|-----|-----|-----|------|
| atg aca ccc agc aac atc gcc ata gtc ctg gga ccc aac ttg ctg tgg | | | | 457 |
| Met Thr Pro Ser Asn Ile Ala Ile Val Leu Gly Pro Asn Leu Leu Trp | | | | |
| | 95 | 100 | 105 | |
| cca cct gag aaa gaa ggg gac cag gcc cag ctg gat gca gcc tcc gtg | | | | 505 |
| Pro Pro Glu Lys Glu Gly Asp Gln Ala Gln Leu Asp Ala Ala Ser Val | | | | |
| | 110 | 115 | 120 | |
| tct tcc atc cag gtg gtg ggc gtc gtc gag gcg ctg atc cag agc gca | | | | 553 |
| Ser Ser Ile Gln Val Val Gly Val Val Glu Ala Leu Ile Gln Ser Ala | | | | |
| | 125 | 130 | 135 | |
| gac acc ctc ttc cct gga gac atc aac ttc aac gtg tca ggc ctc ttc | | | | 601 |
| Asp Thr Leu Phe Pro Gly Asp Ile Asn Phe Asn Val Ser Gly Leu Phe | | | | |
| | 140 | 145 | 150 | 155 |
| tca gct gtt acc ctc cag gac aca gtc agt gac agg ctg gcc tct gag | | | | 649 |
| Ser Ala Val Thr Leu Gln Asp Thr Val Ser Asp Arg Leu Ala Ser Glu | | | | |
| | 160 | 165 | 170 | |
| gaa ctt ccg tcc act gcc gtg ccc acc cca gcc acc acc ccg gct ccg | | | | 697 |
| Glu Leu Pro Ser Thr Ala Val Pro Thr Pro Ala Thr Thr Pro Ala Pro | | | | |
| | 175 | 180 | 185 | |
| gct ccg gct cca gct cca gct ccg gcc cca gcc ttg gct tca gca gct | | | | 745 |
| Ala Pro Ala Pro Ala Pro Ala Pro Ala Pro Ala Leu Ala Ser Ala Ala | | | | |
| | 190 | 195 | 200 | |
| acc aag gaa agg aca gag tct gag gtg cct ccc aga cca gcc tcc ccc | | | | 793 |
| Thr Lys Glu Arg Thr Glu Ser Glu Val Pro Pro Arg Pro Ala Ser Pro | | | | |
| | 205 | 210 | 215 | |
| aag gtc acc agg agt ccc ccg gag aca gct gcc cca gtg gag gac atg | | | | 841 |
| Lys Val Thr Arg Ser Pro Pro Glu Thr Ala Ala Pro Val Glu Asp Met | | | | |
| | 220 | 225 | 230 | 235 |
| gct cgg agg acc aag cgc ccg gcg cca gcc cgg ccc acc atg ccg ccc | | | | 889 |
| Ala Arg Arg Thr Lys Arg Pro Ala Pro Ala Arg Pro Thr Met Pro Pro | | | | |
| | 240 | 245 | 250 | |
| ccc cag gtc tcc ggc tcc cgc tcc tcc cct cca gcc ccg ccc ttg ccc | | | | 937 |
| Pro Gln Val Ser Gly Ser Arg Ser Ser Pro Pro Ala Pro Pro Leu Pro | | | | |
| | 255 | 260 | 265 | |
| cct ggc tct ggc agc cct ggg acc ccc caa gcc ctg ccc cga cgt ctg | | | | 985 |
| Pro Gly Ser Gly Ser Pro Gly Thr Pro Gln Ala Leu Pro Arg Arg Leu | | | | |
| | 270 | 275 | 280 | |
| gtt ggc agc agc ctc cga gcc ccc aca gtg cca ccc ccg tta ccc ccc | | | | 1033 |
| Val Gly Ser Ser Leu Arg Ala Pro Thr Val Pro Pro Pro Leu Pro Pro | | | | |
| | 285 | 290 | 295 | |
| aca ccc cct cag cct gcc cgg cgc caa agc cgg cgt tca cca gcc tcc | | | | 1081 |
| Thr Pro Pro Gln Pro Ala Arg Arg Gln Ser Arg Arg Ser Pro Ala Ser | | | | |
| | 300 | 305 | 310 | 315 |
| ccc agc ccg gcc tcc cca ggt cca gcc tcc ccc agc cca gtc tct ttg | | | | 1129 |
| Pro Ser Pro Ala Ser Pro Gly Pro Ala Ser Pro Ser Pro Val Ser Leu | | | | |
| | 320 | 325 | 330 | |
| agt aac cct gca cag gtg gac ctg ggg gct gcc aca gca gag gga gga | | | | 1177 |
| Ser Asn Pro Ala Gln Val Asp Leu Gly Ala Ala Thr Ala Glu Gly Gly | | | | |

| | 335 | 340 | 345 | |
|---|-----|-----|-----|------|
| gcc cct gag gct atc agt ggg gtc ccc act ccc cca gct atc ccc cct | | | | 1225 |
| Ala Pro Glu Ala Ile Ser Gly Val Pro Thr Pro Pro Ala Ile Pro Pro | | | | |
| | 350 | 355 | 360 | |
| cag ccc cgc ccc agg agc ctt gcc tca gag acc aac tga gtggctggtt | | | | 1274 |
| Gln Pro Arg Pro Arg Ser Leu Ala Ser Glu Thr Asn * | | | | |
| | 365 | 370 | 375 | |
| tctccctaag cagccctcag caccacctcc ctccccacct ggcctccca ggacagctct | | | | 1334 |
| cgccccccac aaaggggcat gggcctccag cctttgccca caagtgcctc agtgcccact | | | | 1394 |
| gggtcggccc ccatggccag gagggctcag gacaatcctc tatttcctga ccttttcctc | | | | 1454 |
| gtccaccctg ggcttgggga cccccccacc ggactctcca ctctccggca ggtcctaggg | | | | 1514 |
| gagccaccgg aaggaaggag aggtttgcct gctcctacgg gactgattct tctcttgccg | | | | 1574 |
| acatgttttt tgtaaggctg gtaaataaat tattttggac | | | | 1614 |

<210> 854
 <211> 1188
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (179)..(1138)

| | |
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| ccagggggac acctggcacc tcagcttctt tcccacttc tccaggctgc atggaggggt | 120 |
| gccgggcagg ggcctcctgg aagggaaacct cctgcagcct caagcaccag gtcattgac | 178 |
| atg aca tct atc cct ttc cca ggt gac cga ctc ctg cag gtg gat gga | 226 |
| Met Thr Ser Ile Pro Phe Pro Gly Asp Arg Leu Leu Gln Val Asp Gly | |
| 1 5 10 15 | |
| gtg att ctg tgc ggc ctc acc cac aag cag gct gtg cag tgc ctg aag | 274 |
| Val Ile Leu Cys Gly Leu Thr His Lys Gln Ala Val Gln Cys Leu Lys | |
| 20 25 30 | |
| ggc cct ggg cag gtt gca aga ctg gtc tta gag aga aga gtc ccc agg | 322 |
| Gly Pro Gly Gln Val Ala Arg Leu Val Leu Glu Arg Arg Val Pro Arg | |
| 35 40 45 | |
| agt aca cag cag tgt cct tct gct aat gac agc atg gga gat gaa cgc | 370 |
| Ser Thr Gln Gln Cys Pro Ser Ala Asn Asp Ser Met Gly Asp Glu Arg | |
| 50 55 60 | |
| acg gct gtt tcc ttg gta aca gcc ttg cct ggc agg cct tcg agc tgt | 418 |
| Thr Ala Val Ser Leu Val Thr Ala Leu Pro Gly Arg Pro Ser Ser Cys | |
| 65 70 75 80 | |
| gtc tcg gtg aca gat ggt cct aag ttt gaa gtc aaa cta aaa aag aat | 466 |
| Val Ser Val Thr Asp Gly Pro Lys Phe Glu Val Lys Leu Lys Lys Asn | |
| 85 90 95 | |

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gcc aat ggt ttg gga ttc agt ttc gtg cag atg gag aaa gag agc tgc      514
Ala Asn Gly Leu Gly Phe Ser Phe Val Gln Met Glu Lys Glu Ser Cys
      100                      105                      110

agc cat ctc aaa agt gat ctt gtg agg att aag agg ctc ttt ccg ggg      562
Ser His Leu Lys Ser Asp Leu Val Arg Ile Lys Arg Leu Phe Pro Gly
      115                      120                      125

cag cca gct gag gag aat ggg gcc att gca gct ggt gac att atc ctg      610
Gln Pro Ala Glu Glu Asn Gly Ala Ile Ala Ala Gly Asp Ile Ile Leu
      130                      135                      140

gcc gtg aat gga agg tcc acg gaa ggc ctc atc ttc cag gag gtg ctg      658
Ala Val Asn Gly Arg Ser Thr Glu Gly Leu Ile Phe Gln Glu Val Leu
      145                      150                      155                      160

cat tta ctg aga ggg gcc cca cag gaa gtc acg ctc ctc ctt tgc cga      706
His Leu Leu Arg Gly Ala Pro Gln Glu Val Thr Leu Leu Leu Cys Arg
      165                      170                      175

ccc cct cca ggt gcg ctg cct gag atg gag cag gaa tgg cag aca cct      754
Pro Pro Pro Gly Ala Leu Pro Glu Met Glu Gln Glu Trp Gln Thr Pro
      180                      185                      190

gaa ctc tca gct gac aaa gaa ttc acc agg gca aca tgt act gac tca      802
Glu Leu Ser Ala Asp Lys Glu Phe Thr Arg Ala Thr Cys Thr Asp Ser
      195                      200                      205

tgt acc agc ccc atc ctg gat caa gag gac agc tgg agg gac agt gcc      850
Cys Thr Ser Pro Ile Leu Asp Gln Glu Asp Ser Trp Arg Asp Ser Ala
      210                      215                      220

tcc cca gat gca ggg gaa ggc ctg ggt ctc agg cca gag tct tcc caa      898
Ser Pro Asp Ala Gly Glu Gly Leu Gly Leu Arg Pro Glu Ser Ser Gln
      225                      230                      235                      240

aag gcc atc aga gag gca caa tgg ggc caa aac aga gag aga cct tgg      946
Lys Ala Ile Arg Glu Ala Gln Trp Gly Gln Asn Arg Glu Arg Pro Trp
      245                      250                      255

gcc agt tcc ttg aca cat tct cct gag tcc cac cct cat tta tgc aaa      994
Ala Ser Ser Leu Thr His Ser Pro Glu Ser His Pro His Leu Cys Lys
      260                      265                      270

ctt cac caa gaa agg gat gaa tca aca ttg gcg acc tct ttg gaa aag      1042
Leu His Gln Glu Arg Asp Glu Ser Thr Leu Ala Thr Ser Leu Glu Lys
      275                      280                      285

gat gtg agg caa aac tgc tat tca gtt tgt gat atc atg aga ctt gga      1090
Asp Val Arg Gln Asn Cys Tyr Ser Val Cys Asp Ile Met Arg Leu Gly
      290                      295                      300

aga tat tcc ttc tca tct cct cta acc aga ctt tcg aca gat att ttc      1138
Arg Tyr Ser Phe Ser Ser Pro Leu Thr Arg Leu Ser Thr Asp Ile Phe
      305                      310                      315                      320

tgagcacctt ctctgcatgt ctgcagtgt gtgtaaaatg ccctcgtgcc      1188

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<210> 855
 <211> 1402
 <212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (893) .. (1231)

<400> 855

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ctcctgaagg agaagccctt ccactctgtg cccttcctca tgggtgtcaa caaccatgag      120
ttcagctggc tcatccccag gggctggggg ctctgggata caatggagca gatgagccgg      180
gaggacatgc tggccatctc aacacccgtc ttgaccagtc tggatgtgcc ccctgagatg      240
atgcccaccg tcatagatga atacctagga agcaactcgg acgcacaagc caaatgccag      300
gcgttccagg aattcatggg tgacgtattc atcaatgttc ccaccgtcag tttttcaaga      360
taccttcgag attctggaag ccctgtcttt ttctatgagt tccagcatcg acccagttct      420
tttgcaaga tcaaacctgc ctgggtgaag gctgatcatg gggccgaggg tgcttttgtg      480
ttcggaggtc ccttcctcat ggacgagagc tcccgctgg cctttccaga ggccacagag      540
gaggagaagc agctaagcct caccatgatg gcccagtgga ccactttgc ccggacagga      600
cctcccacac tttggggcat cgttgccact ggagcctctc ttcgggtgac gttgcccctc      660
cctgctgccc ccaagctggc cccttcccac tcttcagacc ttgaccagga ccccaggaaa      720
caaggcaatc gctggcggtg cgggcctctg ggccgtcctc tgggggtccg agaggacccc      780
accttacaga tgaggaaatt agaatcagag aggggcagta ccgtgcctga ggccacacag      840
gctgaggccc caggataagt tccttgtgct ggcctcagat ggcctgtggg ac      atg      895
                                     Met
                                     1

ctg agc aat gag gac gtg gta agg ctg gtg gtg ggg cac ctg gct gag      943
Leu Ser Asn Glu Asp Val Val Arg Leu Val Val Gly His Leu Ala Glu
                    5                    10                    15

gca gat tgg cac aag aca gac ctg gcc cag aga ccc gcc aac ttg ggg      991
Ala Asp Trp His Lys Thr Asp Leu Ala Gln Arg Pro Ala Asn Leu Gly
                    20                    25                    30

ctc atg cag agc ctg ctg ctg cag agg aaa gcc agc ggg ctc cac gag      1039
Leu Met Gln Ser Leu Leu Leu Gln Arg Lys Ala Ser Gly Leu His Glu
                    35                    40                    45

gct gac caa aat gca gcc acg cgg ctg atc aga cat gcc atc ggg aac      1087
Ala Asp Gln Asn Ala Ala Thr Arg Leu Ile Arg His Ala Ile Gly Asn
                    50                    55                    60                    65

aat gag tat ggg gag atg gag gca gag cgg ctg gcg gcg atg ctg aca      1135
Asn Glu Tyr Gly Glu Met Glu Ala Glu Arg Leu Ala Ala Met Leu Thr
                    70                    75                    80

ttg cca gag gac ttg gcg agg atg tac agg gat gat atc act gtc act      1183
Leu Pro Glu Asp Leu Ala Arg Met Tyr Arg Asp Asp Ile Thr Val Thr
                    85                    90                    95

gtg gtg tat ttt aac tca gaa tca atc ggt gca tat tac aag ggg ggt      1231

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Val Val Tyr Phe Asn Ser Glu Ser Ile Gly Ala Tyr Tyr Lys Gly Gly
 100 105 110

taagaatctc ccatacctatt gtcaagggtta acataaatgc tcttctaaaa tgtttcactt 1291
 actcctaaac tagctatcca aacctatgat gtgagtgccc agacatctac atatcacctt 1351
 tccttttggg ttttgctctg agctacctca atcattctaa agctttaagt t 1402

<210> 856
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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (165) .. (2267)

<400> 856
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 caggccagag acagctgcgc tgtgcgggca gctagtccca gtactccgag tcggtcgcgg 120
 gccgacaggc atcccctgag cgctgctgg gctcttatca cgcg atg gca tcc act 176
 Met Ala Ser Thr
 1

gtg gaa gga ggc gac aca gct ctg ctc cca gaa ttc ccc agg ggg ccc 224
 Val Glu Gly Gly Asp Thr Ala Leu Leu Pro Glu Phe Pro Arg Gly Pro
 5 10 15 20

ctc gat gcc tac cga gca aga gcg tcc ttc agc tgg aag gag ctg gcg 272
 Leu Asp Ala Tyr Arg Ala Arg Ala Ser Phe Ser Trp Lys Glu Leu Ala
 25 30 35

ctg ttc acg gaa ggg gag ggc atg ctc cgc ttt aag aaa acc atc ttc 320
 Leu Phe Thr Glu Gly Glu Gly Met Leu Arg Phe Lys Lys Thr Ile Phe
 40 45 50

tca gct ctt gag aat gac cct ctt ttc gct cgt tcc cct gga gcc gat 368
 Ser Ala Leu Glu Asn Asp Pro Leu Phe Ala Arg Ser Pro Gly Ala Asp
 55 60 65

ctg tcc ttg gag aag tat cgc gag ctg aac ttc ctt cga tgc aag cgg 416
 Leu Ser Leu Glu Lys Tyr Arg Glu Leu Asn Phe Leu Arg Cys Lys Arg
 70 75 80

atc ttc gag tat gac ttc ctc agt gtc gaa gac atg ttc aag agc cct 464
 Ile Phe Glu Tyr Asp Phe Leu Ser Val Glu Asp Met Phe Lys Ser Pro
 85 90 95 100

ctg aag gtc ccc gcc ttg att cag tgc ctg ggc atg tat gac tct tct 512
 Leu Lys Val Pro Ala Leu Ile Gln Cys Leu Gly Met Tyr Asp Ser Ser
 105 110 115

ctg gct gcc aag tac ctc ctc cat agc ttg gtt ttt gga tca gca gtt 560
 Leu Ala Ala Lys Tyr Leu Leu His Ser Leu Val Phe Gly Ser Ala Val
 120 125 130

tac agt tct ggt tct gaa aga cat ctc aca tat att caa aag atc ttc 608
 Tyr Ser Ser Gly Ser Glu Arg His Leu Thr Tyr Ile Gln Lys Ile Phe

| 135 | 140 | 145 | |
|---|-----|-----|------|
| agg atg gag att ttt gga tgt ttt gct ctg acc gaa tta agc cac ggc Arg Met Glu Ile Phe Gly Cys Phe Ala Leu Thr Glu Leu Ser His Gly 150 155 160 | | | 656 |
| agt aat acc aag gcc att cgc aca act gcc cac tac gat cct gcc act Ser Asn Thr Lys Ala Ile Arg Thr Thr Ala His Tyr Asp Pro Ala Thr 165 170 175 180 | | | 704 |
| gag gaa ttc atc ata cat tcc cct gat ttc gaa gct gcc aag ttt tgg Glu Glu Phe Ile Ile His Ser Pro Asp Phe Glu Ala Ala Lys Phe Trp 185 190 195 | | | 752 |
| gtt ggc aac atg ggc aag aca gcc act cac gcg gtg gtg ttt gct aag Val Gly Asn Met Gly Lys Thr Ala Thr His Ala Val Val Phe Ala Lys 200 205 210 | | | 800 |
| ctg tgt gtg cca ggg gac cag tgc cat ggg ctg cat ccc ttt atc gtg Leu Cys Val Pro Gly Asp Gln Cys His Gly Leu His Pro Phe Ile Val 215 220 225 | | | 848 |
| cag atc cgg gac ccg aag acc ctt ctt ccc atg cct gga gtg atg gtt Gln Ile Arg Asp Pro Lys Thr Leu Leu Pro Met Pro Gly Val Met Val 230 235 240 | | | 896 |
| ggc gac ata gga aaa aaa ctg ggg cag aac ggt ctg gat aat ggt ttc Gly Asp Ile Gly Lys Lys Leu Gly Gln Asn Gly Leu Asp Asn Gly Phe 245 250 255 260 | | | 944 |
| gcc atg ttc cac aag gtc aga gtt cct cgc cag agc ctt ctg aac cgg Ala Met Phe His Lys Val Arg Val Pro Arg Gln Ser Leu Leu Asn Arg 265 270 275 | | | 992 |
| atg gga gac gtc acc ccc gag ggc acc tat gtc agc ccc ttt aag gac Met Gly Asp Val Thr Pro Glu Gly Thr Tyr Val Ser Pro Phe Lys Asp 280 285 290 | | | 1040 |
| gtc agg cag cgc ttt gga gcg tcc ctg ggg agc ctg tcc tcg ggc cgg Val Arg Gln Arg Phe Gly Ala Ser Leu Gly Ser Leu Ser Ser Gly Arg 295 300 305 | | | 1088 |
| gtc tcc atc gtg agc ctg gcc atc ctt aac cta aag ctg gcc gtg gcc Val Ser Ile Val Ser Leu Ala Ile Leu Asn Leu Lys Leu Ala Val Ala 310 315 320 | | | 1136 |
| atc gct ctt cgc ttc tca gcc act cgg cgt cag ttt gga ccc aca gag Ile Ala Leu Arg Phe Ser Ala Thr Arg Arg Gln Phe Gly Pro Thr Glu 325 330 335 340 | | | 1184 |
| gag gag gaa ata cca gtg ctt gag tat cca atg cag caa tgg cgc ttg Glu Glu Glu Ile Pro Val Leu Glu Tyr Pro Met Gln Gln Trp Arg Leu 345 350 355 | | | 1232 |
| ctt cca tat ctg gca gct gtc tac gcc tta gac cat ttc tcc aag tcg Leu Pro Tyr Leu Ala Ala Val Tyr Ala Leu Asp His Phe Ser Lys Ser 360 365 370 | | | 1280 |
| ctc ttc ctg gac ctg gtg gag ctc cag cga gga ctt gca tcg gga gac Leu Phe Leu Asp Leu Val Glu Leu Gln Arg Gly Leu Ala Ser Gly Asp 375 380 385 | | | 1328 |
| cgc agc gcc aga cag gca gag ctt gga cgt gag atc cac gcc ctg gca Arg Ser Ala Arg Gln Ala Glu Leu Gly Arg Glu Ile His Ala Leu Ala 390 395 400 | | | 1376 |

| 390 | 395 | 400 | |
|---|-----|-----|------|
| tcg gcc agc aag ccc ctg gcc tcg tgg acc acc cag caa gga att cag Ser Ala Ser Lys Pro Leu Ala Ser Trp Thr Thr Gln Gln Gly Ile Gln 405 410 415 420 | | | 1424 |
| gaa tgc cgg gag gcg tgt gga gga cac ggc tat ctg gcc atg aac cgg Glu Cys Arg Glu Ala Cys Gly Gly His Gly Tyr Leu Ala Met Asn Arg 425 430 435 | | | 1472 |
| ttg ggt gtc ctt aga gat gac aac gat ccc aac tgc aca tac gaa ggt Leu Gly Val Leu Arg Asp Asp Asn Asp Pro Asn Cys Thr Tyr Glu Gly 440 445 450 | | | 1520 |
| gac aac aac atc ctg ctg cag cag aca agc aac tat ttg ctg ggt ctc Asp Asn Asn Ile Leu Leu Gln Gln Thr Ser Asn Tyr Leu Leu Gly Leu 455 460 465 | | | 1568 |
| ctg gca cac cag gtc cac gat gga gct tgc ttc cgc agt ccg ctg aag Leu Ala His Gln Val His Asp Gly Ala Cys Phe Arg Ser Pro Leu Lys 470 475 480 | | | 1616 |
| tca gtg gac ttt ctg gac gcc tat ccc ggc atc ctt gac cag aag ttt Ser Val Asp Phe Leu Asp Ala Tyr Pro Gly Ile Leu Asp Gln Lys Phe 485 490 495 500 | | | 1664 |
| gag gtc tcc agt gtt gcc gac tgc ttg gac tct gca gtc gcc ctg gca Glu Val Ser Ser Val Ala Asp Cys Leu Asp Ser Ala Val Ala Leu Ala 505 510 515 | | | 1712 |
| gca tac aag tgg ctg gtt tgc tac ctg ctc cga gag act tat caa aaa Ala Tyr Lys Trp Leu Val Cys Tyr Leu Leu Arg Glu Thr Tyr Gln Lys 520 525 530 | | | 1760 |
| tta aac caa gag aaa aga tca gga agc agt gac ttt gaa gca agg aac Leu Asn Gln Glu Lys Arg Ser Gly Ser Ser Asp Phe Glu Ala Arg Asn 535 540 545 | | | 1808 |
| aaa tgc cag gtg tcc cac ggc cgt ccg ttg gcg ctg gcc ttc gtg gac Lys Cys Gln Val Ser His Gly Arg Pro Leu Ala Leu Ala Phe Val Asp 550 555 560 | | | 1856 |
| ctc acg gtg gtc cag agg ttc cac gag cac gtg cac cag cct tcc gtg Leu Thr Val Val Gln Arg Phe His Glu His Val His Gln Pro Ser Val 565 570 575 580 | | | 1904 |
| ccg ccc tcg ctg cgg gcc gtg ctg ggg cgg ctc agt gct ctg tac gcc Pro Pro Ser Leu Arg Ala Val Leu Gly Arg Leu Ser Ala Leu Tyr Ala 585 590 595 | | | 1952 |
| ctg tgg tcc ctg agc cgc cac gcg gcc ctg ctc tac cga gga gga tac Leu Trp Ser Leu Ser Arg His Ala Ala Leu Leu Tyr Arg Gly Gly Tyr 600 605 610 | | | 2000 |
| ttc tcc ggt gag cag gcg gga gaa gtg ttg gag agc gcc gtc ctg gct Phe Ser Gly Glu Gln Ala Gly Glu Val Leu Glu Ser Ala Val Leu Ala 615 620 625 | | | 2048 |
| ttg tgt tcc cag ctg aaa gac gat gca gtt gcc ctg gta gac gtg atc Leu Cys Ser Gln Leu Lys Asp Asp Ala Val Ala Leu Val Asp Val Ile 630 635 640 | | | 2096 |
| gct cct cct gac ttt gtt ctg gac tca ccg att ggc aga gcc gac ggc Ala Pro Pro Asp Phe Val Leu Asp Ser Pro Ile Gly Arg Ala Asp Gly 2144 | | | |

| 645 | 650 | 655 | 660 | |
|---|-----|-----|-----|------|
| gag ctc tac aaa aac ctc tgg ggc gct gtc ctg cag gaa agc aag gtg | | | | 2192 |
| Glu Leu Tyr Lys Asn Leu Trp Gly Ala Val Leu Gln Glu Ser Lys Val | | | | |
| | 665 | 670 | 675 | |
| ttg gag cgg gca tcc tgg tgg cca gag ttt tct gtg aac aaa cct gtc | | | | 2240 |
| Leu Glu Arg Ala Ser Trp Trp Pro Glu Phe Ser Val Asn Lys Pro Val | | | | |
| | 680 | 685 | 690 | |
| ata gga agt ctg aaa tcg aag ctc tag tggga ctggcacatt cagccaagtc | | | | 2292 |
| Ile Gly Ser Leu Lys Ser Lys Leu * | | | | |
| | 695 | 700 | | |
| taatgaaacg aagggaacta atcagacgtg gacctcaact tctgattcca gaacacgccg | | | | 2352 |
| gagattgctg ctgctttctg agcccgcacc tgtgcgccta aactgctgat tggcctcaac | | | | 2412 |
| tgcccaggcg gacgggaggg aggcacccgg ccggctggac taatctggga tcgcggtgat | | | | 2472 |
| ttgcagcgtg gaaaagaaat gcagatgatc atgtctacct gatgcgccgt gggttttttg | | | | 2532 |
| ataattagaa ttctgcacat tcagttttca gggttcagct cctttctcta aagtaaacag | | | | 2592 |
| cccattgtca gggaaaaa | | | | 2610 |

<210> 857
 <211> 1071
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (177) .. (878)

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| gacccttcc tcccacagcc ccttcccgcc cctcgccggg catccgccga caggtaacata | 120 |
| ccaagaaatt gaattgctga gtcacaggag agatttacaa atagtgtttt ggcac | 176 |
| atg gaa cgt gta ggt tgt act tta acg aca act tac gcc cac cct aga | 224 |
| Met Glu Arg Val Gly Cys Thr Leu Thr Thr Thr Tyr Ala His Pro Arg | |
| 1 5 10 15 | |
| cca aca cca acc aac ttt cta cca gcc atc agt acc atg gcc tca agc | 272 |
| Pro Thr Pro Thr Asn Phe Leu Pro Ala Ile Ser Thr Met Ala Ser Ser | |
| 20 25 30 | |
| tac agg gac cgc ttt ccc cac tcc aat ttg acc cat agc ctg agc ctt | 320 |
| Tyr Arg Asp Arg Phe Pro His Ser Asn Leu Thr His Ser Leu Ser Leu | |
| 35 40 45 | |
| cct tgg aga ccc agc aca tac tac aaa gtc gcc tcc aat tcc cca agc | 368 |
| Pro Trp Arg Pro Ser Thr Tyr Tyr Lys Val Ala Ser Asn Ser Pro Ser | |
| 50 55 60 | |
| gtg gcc ccg tac tgc acc aga tca cag agg gtg tcc gag aat acc atg | 416 |
| Val Ala Pro Tyr Cys Thr Arg Ser Gln Arg Val Ser Glu Asn Thr Met | |
| 65 70 75 80 | |

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ctt ccc ttt gtt tcc aac aga acc act ttc ttc aca aga tac aca ccg      464
Leu Pro Phe Val Ser Asn Arg Thr Thr Phe Phe Thr Arg Tyr Thr Pro
           85                      90                      95

gat gac tgg tac agg tcc aat tta acc aac tat caa gag tcc aac act      512
Asp Asp Trp Tyr Arg Ser Asn Leu Thr Asn Tyr Gln Glu Ser Asn Thr
           100                    105                    110

tcc cga cat aat tcg gag aaa cta aga gtg gat aca tct cgc ctg att      560
Ser Arg His Asn Ser Glu Lys Leu Arg Val Asp Thr Ser Arg Leu Ile
           115                    120                    125

caa gac aaa tat caa caa aca aga aaa act cag gca gac aca acc caa      608
Gln Asp Lys Tyr Gln Gln Thr Arg Lys Thr Gln Ala Asp Thr Thr Gln
           130                    135                    140

aat ctg gga gaa cgt gtc aat gac ata ggg ttt tgg aaa tct gaa atc      656
Asn Leu Gly Glu Arg Val Asn Asp Ile Gly Phe Trp Lys Ser Glu Ile
           145                    150                    155                    160

att cat gag ttg gat gaa atg att gga gag aca aat gca ctt act gat      704
Ile His Glu Leu Asp Glu Met Ile Gly Glu Thr Asn Ala Leu Thr Asp
           165                    170                    175

gtg aag aaa aga ctg gag cgg gct ttg atg gag act gaa gcc cct ctt      752
Val Lys Lys Arg Leu Glu Arg Ala Leu Met Glu Thr Glu Ala Pro Leu
           180                    185                    190

cag gta gcc cga gaa tgt cta ttt cat cga gaa aag aga atg gga atc      800
Gln Val Ala Arg Glu Cys Leu Phe His Arg Glu Lys Arg Met Gly Ile
           195                    200                    205

gac cta gtt cac gat gaa gtt gaa gca caa ctg ctg acg gta aat gtg      848
Asp Leu Val His Asp Glu Val Glu Ala Gln Leu Leu Thr Val Asn Val
           210                    215                    220

ggg gaa atg cat cag tca cag gca gct tag t tgtaaatgta tggtgaatat      899
Gly Glu Met His Gln Ser Gln Ala Ala *
           225                    230

gtagaagcaa aaaaggatgt tacataaaat gacttataag taaagcatta tcgtatcaga      959

tgctgatagc atttagcaaa gacatgtttt tcttggttat aacatatatt caatgagaat      1019

atgaaaatgc aaacgagtaa ataaagatga aaatcacttg aaaaaaaaaa aa      1071

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<210> 858
 <211> 1627
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (397) .. (972)

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<400> 858
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tgcggccggg cctcgccggc aaccgggtcc ccacctgaaa ccccgctgc cactccgttc      180

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| | |
|---|------|
| cagaggggcca atagccgtgc aacctgccccg ggatggggcg ggacttatgc aaatagtgtc | 240 |
| gccttcggga ggcacatagt gatacaagag ctggaaggcg gctccggcgc agaccttga | 300 |
| gagcacagct gccggccccgc gagccagcct cggttccccgc ggccccccga ggctcggagc | 360 |
| catccagcga cccggcgacc ggccctcaggc cccgcc atg ggg aag acc aac agc Met Gly Lys Thr Asn Ser 1 5 | 414 |
| aag ctg gcc ccc gag gtg ctg gag gac ctt gtt cag aac act gag ttc Lys Leu Ala Pro Glu Val Leu Glu Asp Leu Val Gln Asn Thr Glu Phe 10 15 20 | 462 |
| agc gag cag gag ctg aag cag tgg tac aag ggc ttc ctg aag gac tgc Ser Glu Gln Glu Leu Lys Gln Trp Tyr Lys Gly Phe Leu Lys Asp Cys 25 30 35 | 510 |
| ccc agc ggc atc ctc aac ctg gag gag ttt cag cag ctc tac atc aag Pro Ser Gly Ile Leu Asn Leu Glu Glu Phe Gln Gln Leu Tyr Ile Lys 40 45 50 | 558 |
| ttc ttc ccc tac ggc gac gcc tcc aag ttc gcg cag cac gct ttc cgc Phe Phe Pro Tyr Gly Asp Ala Ser Lys Phe Ala Gln His Ala Phe Arg 55 60 65 70 | 606 |
| acc ttc gac aag aac ggc gac ggc acc atc gac ttc cgg gag ttc atc Thr Phe Asp Lys Asn Gly Asp Gly Thr Ile Asp Phe Arg Glu Phe Ile 75 80 85 | 654 |
| tgc gcc ctg tcg gtc acc tcc cgc ggc agc ttc gag cag aag ctc aac Cys Ala Leu Ser Val Thr Ser Arg Gly Ser Phe Glu Gln Lys Leu Asn 90 95 100 | 702 |
| tgg gcc ttt gag atg tac gac ctg gac ggc gac ggg cgc atc acg cgc Trp Ala Phe Glu Met Tyr Asp Leu Asp Gly Asp Gly Arg Ile Thr Arg 105 110 115 | 750 |
| ctg gag atg ctg gag atc atc gag gca atc tac aag atg gtg ggc acc Leu Glu Met Leu Glu Ile Ile Glu Ala Ile Tyr Lys Met Val Gly Thr 120 125 130 | 798 |
| gtg atc atg atg cgc atg aac cag gac ggg ctc acg ccc cag cag cgt Val Ile Met Met Arg Met Asn Gln Asp Gly Leu Thr Pro Gln Gln Arg 135 140 145 150 | 846 |
| gtg gac aag atc ttc aag aag atg gac cag gat aag gac gac cag att Val Asp Lys Ile Phe Lys Lys Met Asp Gln Asp Lys Asp Asp Gln Ile 155 160 165 | 894 |
| aca ttg gag gag ttc aag gag gca gcc aag agt gac cca tcc att gtg Thr Leu Glu Glu Phe Lys Glu Ala Ala Lys Ser Asp Pro Ser Ile Val 170 175 180 | 942 |
| ttg ctg ctg cag tgt gac atg cag aag tag a agctgggtgag gggcagggtc Leu Leu Leu Gln Cys Asp Met Gln Lys * | 993 |
| 185 190 | |
| cctggccaga aggggcatgg ccacctccca acctgatgac ctctctggct ggccctcccag | 1053 |
| gaggaggggac actccagccc ccctctctgg cccacccagt cctctgcccag agcccttcct | 1113 |
| cccctccatc aagatctttg agggaccacc tcaccctgca aaagagacag gtccctccagt | 1173 |

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accctgtctt ctagcccccac ctcccacttg gccagaacca atgtccattg ggcataagggg 1233
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gaattctctt gatcctggga ttatgcttta tgggatgtgg tcccacaggc ctgtcacagg 1353
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tcccttctac tctacctggc cttccagcc ccagcctttg gagcgttcat tcagtccttt 1473
cttcagctaa tgattactga cacctgtttg gtgctaagga tatggtcatt tacaagacac 1533
atcttgtgcc ctctggaagc tcataggggt gtgaggcaaa cttccagccg tcagggtctc 1593
agctaagcag aaggtgctgg aaggcggaat tcat 1627

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 <213> Homo sapiens

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 <222> (117)..(1133)

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cctgaggctg tggctacggc tgctccggag ctggtggcgc cgcgatagga gagccg 116
atg gcc aag tgg ggt gag gga gac cca cgc tgg atc gtg gag gag cgg 164
Met Ala Lys Trp Gly Glu Gly Asp Pro Arg Trp Ile Val Glu Glu Arg
  1          5          10          15

gcg gac gcc acc aac gtc aac aac tgg cac tgg acg gag aga gat gct 212
Ala Asp Ala Thr Asn Val Asn Asn Trp His Trp Thr Glu Arg Asp Ala
          20          25          30

tca aat tgg tcc acg gat aag ctg aaa aca ctg ttc ttg gca gtg cag 260
Ser Asn Trp Ser Thr Asp Lys Leu Lys Thr Leu Phe Leu Ala Val Gln
          35          40          45

gtt caa aat gaa gaa ggc aag tgt gag gtg acg gaa gtg agt aag ctt 308
Val Gln Asn Glu Glu Gly Lys Cys Glu Val Thr Glu Val Ser Lys Leu
          50          55          60

gat gga gag gca tcc att aac aat cgc aaa ggg aaa ctt atc ttc ttt 356
Asp Gly Glu Ala Ser Ile Asn Asn Arg Lys Gly Lys Leu Ile Phe Phe
          65          70          75          80

tat gaa tgg agc gtc aaa cta aac tgg aca ggt act tct aag tca gga 404
Tyr Glu Trp Ser Val Lys Leu Asn Trp Thr Gly Thr Ser Lys Ser Gly
          85          90          95

gta cag tac aaa gga cat gtg gag atc ccc aat ttg tct gat gaa aac 452
Val Gln Tyr Lys Gly His Val Glu Ile Pro Asn Leu Ser Asp Glu Asn
          100          105          110

agc gtg gat gaa gtg gag att agt gtg agc ctt gcc aaa gat gag cct 500
Ser Val Asp Glu Val Glu Ile Ser Val Ser Leu Ala Lys Asp Glu Pro
          115          120          125

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gac aca aat ctc gtg gcc tta atg aag gaa gaa ggg gtg aaa ctt cta 548
 Asp Thr Asn Leu Val Ala Leu Met Lys Glu Glu Gly Val Lys Leu Leu
 130 135 140

aga gaa gca atg gga att tac atc agc acc ctc aaa aca gag ttc acc 596
 Arg Glu Ala Met Gly Ile Tyr Ile Ser Thr Leu Lys Thr Glu Phe Thr
 145 150 155 160

cag ggc atg atc tta cct aca atg aat gga gag tca gta gac cca gtg 644
 Gln Gly Met Ile Leu Pro Thr Met Asn Gly Glu Ser Val Asp Pro Val
 165 170 175

ggg cag cca gca ctg aaa act gag gag cgc aag gct aag cct gct cct 692
 Gly Gln Pro Ala Leu Lys Thr Glu Glu Arg Lys Ala Lys Pro Ala Pro
 180 185 190

tca aaa acc cag gcc aga cct gtt gga gtc aaa atc ccc act tgt aag 740
 Ser Lys Thr Gln Ala Arg Pro Val Gly Val Lys Ile Pro Thr Cys Lys
 195 200 205

atc act ctt aag gaa acc ttc ctg acg tca cca gag gag ctc tat aga 788
 Ile Thr Leu Lys Glu Thr Phe Leu Thr Ser Pro Glu Glu Leu Tyr Arg
 210 215 220

gtg ttt acc acc caa gag ctg gtg cag gcc ttt acc cat gct cct gca 836
 Val Phe Thr Thr Gln Glu Leu Val Gln Ala Phe Thr His Ala Pro Ala
 225 230 235 240

aca tta gaa gca gac aga ggt gga aag ttc cac atg gta gat ggc aac 884
 Thr Leu Glu Ala Asp Arg Gly Gly Lys Phe His Met Val Asp Gly Asn
 245 250 255

gtc tct ggg gaa ttt act gat ctg gtc cct gag aaa cat att gtg atg 932
 Val Ser Gly Glu Phe Thr Asp Leu Val Pro Glu Lys His Ile Val Met
 260 265 270

aag tgg agg ttt aaa tct tgg cca gag gga cac ttt gcc acc atc acc 980
 Lys Trp Arg Phe Lys Ser Trp Pro Glu Gly His Phe Ala Thr Ile Thr
 275 280 285

ttg acc ttc atc gac aag aac gga gag act gag ctg tgc atg gaa ggt 1028
 Leu Thr Phe Ile Asp Lys Asn Gly Glu Thr Glu Leu Cys Met Glu Gly
 290 295 300

cga ggc atc cct gct cct gag gaa gag cgg aca cga cag ggc tgg cag 1076
 Arg Gly Ile Pro Ala Pro Glu Glu Glu Arg Thr Arg Gln Gly Trp Gln
 305 310 315 320

cgg tac tac ttt gag ggc att aaa cag acc ttt ggc tat ggc gca cgc 1124
 Arg Tyr Tyr Phe Glu Gly Ile Lys Gln Thr Phe Gly Tyr Gly Ala Arg
 325 330 335

tta ttt tag ggccagc ggcaggggac tccagcctgc tggacacttc agtccagctc 1180
 Leu Phe *

tctcctgact ggggcttgcg actcacagga ttgcacgctc ccagctgcta acttggggcc 1240

gggggccctc ccttcacat ataccttggg tttgtgcatg ttttctgctg ggtgggttca 1300

gagggcaatt tctcttttat gtgtacatat gctaaataaa cataatttaa aaaacaaaaa 1360

aaaaaaaaaa a 1371

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 <213> Homo sapiens

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 <222> (1)..(933)

<400> 860

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| Met Ser Tyr Leu Lys Gln Pro Pro Tyr Ala Val Asn Gly Leu Ser Leu | |
| 1 5 10 15 | |
| acc act tcg ggt atg gac ttg ctg cac ccc tcc gtg ggc tac ccg ggt | 96 |
| Thr Thr Ser Gly Met Asp Leu Leu His Pro Ser Val Gly Tyr Pro Gly | |
| 20 25 30 | |
| ttg cct tct gag gaa gca gtc cca ggg cat tta ctg acc aag cag aga | 144 |
| Leu Pro Ser Glu Glu Ala Val Pro Gly His Leu Leu Thr Lys Gln Arg | |
| 35 40 45 | |
| aca ggg gtt ggg aaa acc acc ccc cgg aaa cag cgc cgg gag agg acg | 192 |
| Thr Gly Val Gly Lys Thr Thr Pro Arg Lys Gln Arg Arg Glu Arg Thr | |
| 50 55 60 | |
| acg ttc act cgg gcg cag cta gat gtg ctg gaa gca ctg ttt gcc aag | 240 |
| Thr Phe Thr Arg Ala Gln Leu Asp Val Leu Glu Ala Leu Phe Ala Lys | |
| 65 70 75 80 | |
| acc cgg tac cca gac atc ttc atg cga gag gag gtg gca ctg aaa atc | 288 |
| Thr Arg Tyr Pro Asp Ile Phe Met Arg Glu Glu Val Ala Leu Lys Ile | |
| 85 90 95 | |
| aac ttg ccc gag tcg agg gtg cag gta tgg ttt aag aat cga aga gct | 336 |
| Asn Leu Pro Glu Ser Arg Val Gln Val Trp Phe Lys Asn Arg Arg Ala | |
| 100 105 110 | |
| aag tgc cgc caa caa cag caa caa cag cag aat gga ggt caa aac aaa | 384 |
| Lys Cys Arg Gln Gln Gln Gln Gln Gln Asn Gly Gly Gln Asn Lys | |
| 115 120 125 | |
| gtg aga cct gcc aaa aag aag aca tct cca gct cgg gaa gtg agt tca | 432 |
| Val Arg Pro Ala Lys Lys Lys Thr Ser Pro Ala Arg Glu Val Ser Ser | |
| 130 135 140 | |
| gag agt gga aca agt ggc caa ttc act ccc ccc tct agc acc tca gtc | 480 |
| Glu Ser Gly Thr Ser Gly Gln Phe Thr Pro Pro Ser Ser Thr Ser Val | |
| 145 150 155 160 | |
| ccg acc att gcc agc agc agt gct cct gtg tct atc tgg agc cca gct | 528 |
| Pro Thr Ile Ala Ser Ser Ser Ala Pro Val Ser Ile Trp Ser Pro Ala | |
| 165 170 175 | |
| tcc atc tcc cca ctg tca gat ccc ttg tcc acc tcc tct tcc tgc atg | 576 |
| Ser Ile Ser Pro Leu Ser Asp Pro Leu Ser Thr Ser Ser Ser Cys Met | |
| 180 185 190 | |
| cag agg tcc tat ccc atg acc tat act cag gct tca ggt tat agt caa | 624 |
| Gln Arg Ser Tyr Pro Met Thr Tyr Thr Gln Ala Ser Gly Tyr Ser Gln | |

| 195 | 200 | 205 | |
|--|-----|-----|------|
| gga tat gct ggc tca act tcc tac ttt ggg ggc atg gac tgt gga tca | | | 672 |
| Gly Tyr Ala Gly Ser Thr Ser Tyr Phe Gly Gly Met Asp Cys Gly Ser | | | |
| 210 | 215 | 220 | |
| tat ttg acc cct atg cat cac cag ctt ccc gga cca ggg gcc aca ctc | | | 720 |
| Tyr Leu Thr Pro Met His His Gln Leu Pro Gly Pro Gly Ala Thr Leu | | | |
| 225 | 230 | 235 | 240 |
| agt ccc atg ggt acc aat gca gtc acc agc cat ctc aat cag tcc cca | | | 768 |
| Ser Pro Met Gly Thr Asn Ala Val Thr Ser His Leu Asn Gln Ser Pro | | | |
| 245 | 250 | 255 | |
| gct tct ctt tcc acc cag gga tat gga gct tca agc ttg ggt ttt aac | | | 816 |
| Ala Ser Leu Ser Thr Gln Gly Tyr Gly Ala Ser Ser Leu Gly Phe Asn | | | |
| 260 | 265 | 270 | |
| tca acc act gat tgc ttg gat tat aag gac caa act gcc tcc tgg aag | | | 864 |
| Ser Thr Thr Asp Cys Leu Asp Tyr Lys Asp Gln Thr Ala Ser Trp Lys | | | |
| 275 | 280 | 285 | |
| ctt aac ttc aat gct gac tgc ttg gat tat aaa gat cag aca tcc tcg | | | 912 |
| Leu Asn Phe Asn Ala Asp Cys Leu Asp Tyr Lys Asp Gln Thr Ser Ser | | | |
| 290 | 295 | 300 | |
| tgg aaa ttc cag gtt ttg tga ag acctgtagaa cctcttttttg tgggtgattt | | | 965 |
| Trp Lys Phe Gln Val Leu * | | | |
| 305 | 310 | | |
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| ggatgatgcc g | | | 1036 |

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<220>
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 <222> (93)..(1457)

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| aagcaggctg gtaccgggtcc ggaattcccg gg atg gcg cag cgg gac tgg acc | 113 |
| Met Ala Gln Arg Asp Trp Thr | |
| 1 5 | |
| tgg gtg ccg agc gga gcc gct gcc atg ggc ctg ggc gtc agc gct gag | 161 |
| Trp Val Pro Ser Gly Ala Ala Met Gly Leu Gly Val Ser Ala Glu | |
| 10 15 20 | |
| cag ccc gca ggc ggc gcc gag ggc ttc cac ctc cac ggg gtg cag gag | 209 |
| Gln Pro Ala Gly Gly Ala Glu Gly Phe His Leu His Gly Val Gln Glu | |
| 25 30 35 | |
| aac tcc cca gcc cag cag gcg ggc ctg gag ccc tac ttt gac ttc atc | 257 |
| Asn Ser Pro Ala Gln Gln Ala Gly Leu Glu Pro Tyr Phe Asp Phe Ile | |
| 40 45 50 55 | |

| | |
|---|------|
| atc acc att ggg cac tcg agg ctg aac aag gag aat gac acc ctg aag Ile Thr Ile Gly His Ser Arg Leu Asn Lys Glu Asn Asp Thr Leu Lys 60 65 70 | 305 |
| gca cta ctg aaa gcc aat gtg gag aag ccc gtg aag ctg gag gtg ttc Ala Leu Leu Lys Ala Asn Val Glu Lys Pro Val Lys Leu Glu Val Phe 75 80 85 | 353 |
| aat atg aag acc atg agg gtg cgc gag gtg gag gtg gtg ccc agc aac Asn Met Lys Thr Met Arg Val Arg Glu Val Glu Val Val Pro Ser Asn 90 95 100 | 401 |
| atg tgg ggc ggc cag ggc cta ctg ggt gcc agt gtg cgc ttc tgc agc Met Trp Gly Gly Gln Gly Leu Leu Gly Ala Ser Val Arg Phe Cys Ser 105 110 115 | 449 |
| ttc cgc agg gcc agt gag cag gtg tgg cat gtg ctg gat gtg gaa cca Phe Arg Arg Ala Ser Glu Gln Val Trp His Val Leu Asp Val Glu Pro 120 125 130 135 | 497 |
| tct tca cct gct gcc ctt gcc ggc ctg cgc ccc tac aca gac tat gtg Ser Ser Pro Ala Ala Leu Ala Gly Leu Arg Pro Tyr Thr Asp Tyr Val 140 145 150 | 545 |
| gtt ggt tcg gac cag att ctc cag gag tcc gag gac ttc ttt acg ctc Val Gly Ser Asp Gln Ile Leu Gln Glu Ser Glu Asp Phe Phe Thr Leu 155 160 165 | 593 |
| atc gag tct cat gag ggg aag ccc ttg aag ctg atg gtg tat aac tcc Ile Glu Ser His Glu Gly Lys Pro Leu Lys Leu Met Val Tyr Asn Ser 170 175 180 | 641 |
| aag tca gac tcc tgc cgg gag gtg act gta act ccc aac gca gcc tgg Lys Ser Asp Ser Cys Arg Glu Val Thr Val Thr Pro Asn Ala Ala Trp 185 190 195 | 689 |
| ggt gga gag ggc agt ctg gga tgt ggc att ggc tat ggg tat cta cac Gly Gly Glu Gly Ser Leu Gly Cys Gly Ile Gly Tyr Gly Tyr Leu His 200 205 210 215 | 737 |
| cgg atc cca act cag ccc ccc agc tac cac aag aag cca cct ggc acc Arg Ile Pro Thr Gln Pro Pro Ser Tyr His Lys Lys Pro Pro Gly Thr 220 225 230 | 785 |
| cca cca cct tct gct cta cca ctt ggt gcc cca cca cct gat gct cta Pro Pro Pro Ser Ala Leu Pro Leu Gly Ala Pro Pro Pro Asp Ala Leu 235 240 245 | 833 |
| cca cct gga ccc acc ccc gag gac tct cct tcc ctg gag aca ggt tcc Pro Pro Gly Pro Thr Pro Glu Asp Ser Pro Ser Leu Glu Thr Gly Ser 250 255 260 | 881 |
| agg cag agt gac tac atg gag gcc ctg ctg cag gca cct ggc tcc tcc Arg Gln Ser Asp Tyr Met Glu Ala Leu Leu Gln Ala Pro Gly Ser Ser 265 270 275 | 929 |
| atg gag gat ccc ctt cct ggg cct ggg agt ccc agc cac agt gct cca Met Glu Asp Pro Leu Pro Gly Pro Gly Ser Pro Ser His Ser Ala Pro 280 285 290 295 | 977 |
| gac cct gat gga ctt ccc cat ttc atg gag act cct ctt cag ccc cca Asp Pro Asp Gly Leu Pro His Phe Met Glu Thr Pro Leu Gln Pro Pro 300 305 310 | 1025 |

| | |
|---|------|
| cct cca gtg cag cga gtt atg gac cca ggc ttc ctg gac gtg tcg gga Pro Pro Val Gln Arg Val Met Asp Pro Gly Phe Leu Asp Val Ser Gly 315 320 325 | 1073 |
| att tct ctg ttg gac aac agc aat gcc agt gtg tgg ccc agc ctg ccc Ile Ser Leu Leu Asp Asn Ser Asn Ala Ser Val Trp Pro Ser Leu Pro 330 335 340 | 1121 |
| tct tcc aca gaa ctg acc acc aca gct gtc tca acc tca ggg cca gag Ser Ser Thr Glu Leu Thr Thr Thr Ala Val Ser Thr Ser Gly Pro Glu 345 350 355 | 1169 |
| gac atc tgc tcc agc agc agt tct cat gag cgg ggt ggt gag gct aca Asp Ile Cys Ser Ser Ser Ser Ser His Glu Arg Gly Gly Glu Ala Thr 360 365 370 375 | 1217 |
| tgg tct ggg tca gag ttt gag gtc tcc ttc ctg gac agc cca ggt gcc Trp Ser Gly Ser Glu Phe Glu Val Ser Phe Leu Asp Ser Pro Gly Ala 380 385 390 | 1265 |
| caa gcc cag gcg gac cac ctg cct cag ctg act ctt cct gac agt ctg Gln Ala Gln Ala Asp His Leu Pro Gln Leu Thr Leu Pro Asp Ser Leu 395 400 405 | 1313 |
| acc tct gca gcc tca cca gaa gat ggg ctg tcc gcc gag ctg ctt gaa Thr Ser Ala Ala Ser Pro Glu Asp Gly Leu Ser Ala Glu Leu Leu Glu 410 415 420 | 1361 |
| gct cag gct gag gag gaa cca gca agc aca gag ggc cta gat act ggg Ala Gln Ala Glu Glu Glu Pro Ala Ser Thr Glu Gly Leu Asp Thr Gly 425 430 435 | 1409 |
| acg gag gct gag ggg ctg gac agc caa gcc cag atc tct acc aca gaa Thr Glu Ala Glu Gly Leu Asp Ser Gln Ala Gln Ile Ser Thr Thr Glu 440 445 450 455 | 1457 |
| taacacccctg ggctgtgaca aggcccatga tgacatttca tgaggcccag atgtgggcag | 1517 |
| gcagcccggg ctgcactatg cggtcaggat tccttgctgc tttggtggga catgaggcct | 1577 |
| cagtgggtgg tgagaggggg ccattggcttt gtgggaggat atcttttggc cgtgtaccct | 1637 |
| caggccagt gcttggtcct gctctggtca ctggggcttc ccaggaggca gcagggtctg | 1697 |
| gtcataatcc agtgtgaaga tgagggtgagg aaggaagggg ttgctgtcca gtgttggcct | 1757 |
| ggtcgctttg attcttcctg cacagctcag cccaccccat ctgtactgga agggaccctg | 1817 |
| gagccctggg accacccctt ttcaagtccc aaacactgag tcctctgtca tgtgtccttg | 1877 |
| tccttaggct acaatgctac acttggtcga ggctgatcac catgctagtc acaggaggga | 1937 |
| gagagaggca gtgtacttgc ccccatctcc tggagggagg tgcgttgga attctaggcc | 1997 |
| cttcagcaga gaccatttg tgcccagacc acaatatttc ttcttcctca gggactacat | 2057 |
| gccacagacc tgtatcccca gtggcaactc ctgttagctc ccaaacttaa acagtgatct | 2117 |
| cttctaaata tacaaggcat ctaccagcc ccaatagtga ataaaagtca caaatttaag | 2177 |
| ttcaacaccc taagcaattt ctcaaagcca gtctacctga ctaggtctat ccacgcacgg | 2237 |
| ttcccaaccc caagggggaa ttaggggatt agattaagag taggtaaaga cccttttggt | 2297 |

ctttcctggt gtaggggagg aagctgttct cccacacca ggtgcctttg gaggttaagg 2357
 ctaggttagg ccctgcactc cacctgggga cggccctca tcacctgaag tcctctgctg 2417
 tgttgactgg accctcagtt cccacactgc taattactat gaaagctgct ctggcctcgt 2477
 cttctagctt gtgcctagtt gaaagtctca cctttacagg atcatttgta atgctgggtg 2537
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 ggcacaggcc aactatatgg agggag 2623

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 ggaogcccg ccttcagccc tgcggctcct ggggtcgctg ctgcatcccg cagcctcca 180
 ccggctgcag accc atg gcc gag cgc ggg gaa ctg gac ttg acc ggc gcc 230
 Met Ala Glu Arg Gly Glu Leu Asp Leu Thr Gly Ala
 1 5 10
 aaa cag aac aca gga gtg tgg cta gtc aag gtt cct aaa tat ttg tca 278
 Lys Gln Asn Thr Gly Val Trp Leu Val Lys Val Pro Lys Tyr Leu Ser
 15 20 25
 cag caa tgg gct aaa gcc tct gga aga ggt gaa gtt ggg aaa ctg cgg 326
 Gln Gln Trp Ala Lys Ala Ser Gly Arg Gly Glu Val Gly Lys Leu Arg
 30 35 40
 att gcc aag act caa gga agg act gag gtg tca ttt act ttg aat gag 374
 Ile Ala Lys Thr Gln Gly Arg Thr Glu Val Ser Phe Thr Leu Asn Glu
 45 50 55 60
 gat ctt gca aat att cat gat att ggt gga aaa cca gct tca gtc agt 422
 Asp Leu Ala Asn Ile His Asp Ile Gly Gly Lys Pro Ala Ser Val Ser
 65 70 75
 gct cct aga gaa cat cca ttt gtc ttg caa agt gtt gga gga cag aca 470
 Ala Pro Arg Glu His Pro Phe Val Leu Gln Ser Val Gly Gly Gln Thr
 80 85 90
 tta aca gta ttt act gag agc tca tca gat aag ctg tca ttg gaa gga 518
 Leu Thr Val Phe Thr Glu Ser Ser Ser Asp Lys Leu Ser Leu Glu Gly
 95 100 105
 ata gtg gta caa aga gct gaa tgc cga cca gct gcc agt gaa aac tac 566
 Ile Val Val Gln Arg Ala Glu Cys Arg Pro Ala Ala Ser Glu Asn Tyr
 110 115 120

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atg cga tta aaa aga ttg caa ata gaa gag tct tcc aaa cca gtg agg      614
Met Arg Leu Lys Arg Leu Gln Ile Glu Glu Ser Ser Lys Pro Val Arg
125                               130                               135                               140

cta tca caa cag ctg gac aaa gtt gta aca acc aat tac aaa cct gtt      662
Leu Ser Gln Gln Leu Asp Lys Val Val Thr Thr Asn Tyr Lys Pro Val
                               145                               150                               155

gct aat cat caa tac aat atc gaa tat gaa agg aaa aag aaa gaa gac      710
Ala Asn His Gln Tyr Asn Ile Glu Tyr Glu Arg Lys Lys Lys Glu Asp
                               160                               165                               170

gga aag cga gct cga gct gat aaa caa cat gtt tta gac atg cta ttt      758
Gly Lys Arg Ala Arg Ala Asp Lys Gln His Val Leu Asp Met Leu Phe
                               175                               180                               185

tca gcc ttt gag aaa cat caa tac tat aat ctt aag gac ttg gtg gac      806
Ser Ala Phe Glu Lys His Gln Tyr Tyr Asn Leu Lys Asp Leu Val Asp
                               190                               195                               200

atc aca aaa caa cct gtg gtg tac ctg aag gaa atc tta aaa gaa att      854
Ile Thr Lys Gln Pro Val Val Tyr Leu Lys Glu Ile Leu Lys Glu Ile
205                               210                               215                               220

ggg gtt cag aat gta aaa ggg atc cac aaa aac aca tgg gag ctg aag      902
Gly Val Gln Asn Val Lys Gly Ile His Lys Asn Thr Trp Glu Leu Lys
                               225                               230                               235

cca gag tac aga cac tat caa gga gaa gaa aag agt gac taa gaagact      951
Pro Glu Tyr Arg His Tyr Gln Gly Glu Glu Lys Ser Asp *
                               240                               245                               250

cctagccagc atgctagtga aacgactagc agcgatgcta tgcaaaaggc gctgatactg 1011
gaaggcttga acaccgtatg ttaatagggg ttaagtgaca gtactttgat ttctctcggt 1071
aaatttttta aacctgtaat tcttgtaaag tttcttaact gtttttttga ggagaaagaa 1131
cagatttatt tatagactta acttgtatta aaccagatta ttcacagtag gaataggggt 1191
tggaggatta agagggtttt tcttaaatat tagcttttaa tgtgtacaat taggaaattt 1251
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ggagaattgt atagcaagaa aaaaacagtc aactacagaa actcttaaaa ggaataaaaa 1371
cccaaagttc cttattttga aattgtcaaa gaacaaagcg gtgtttttct tttaaacagg 1431
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aaaaaaaaa 1499

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<213> Homo sapiens
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<220>
<221> CDS
<222> (190)..(354)

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 ataattcaat actatgggcc agctacctgg gcacaagatg ggtcacgggg atactgcact 180
 cctatttac atg ctt aac cac atc ata agg ttg cag gca gta ctt gaa 228
 Met Leu Asn His Ile Ile Arg Leu Gln Ala Val Leu Glu
 1 5 10
 atc atc atg aat gaa aga gca aat gca tta gat tta ctg gcc cag caa 276
 Ile Ile Met Asn Glu Arg Ala Asn Ala Leu Asp Leu Leu Ala Gln Gln
 15 20 25
 acc aca aaa atg aga aat gct aac tat cag aac aga tta gct tta gat 324
 Thr Thr Lys Met Arg Asn Ala Asn Tyr Gln Asn Arg Leu Ala Leu Asp
 30 35 40 45
 tac ctc cta gcc cac gaa gga gga gta tga g gaaagttcag tctaactaat 375
 Tyr Leu Leu Ala His Glu Gly Gly Val *
 50 55
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 aaattagccc atattccagt tcacactttg aaagggg 472

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<220>
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 Glu Arg Gly Arg Lys Arg Pro Cys Gly Pro Gly Glu His Gly Gln Arg
 5 10 15
 att gag tgg cga aaa tgg aag caa cag aag aaa gag gag aaa aaa aaa 151
 Ile Glu Trp Arg Lys Trp Lys Gln Gln Lys Lys Glu Glu Lys Lys Lys
 20 25 30
 tgg aag gat ctc aag ctg atg aaa aaa ctg gag cgg cag cgg gca cag 199
 Trp Lys Asp Leu Lys Leu Met Lys Lys Leu Glu Arg Gln Arg Ala Gln
 35 40 45 50
 gag gaa cag gca aag cgc ctg gaa gag gag gag gca gcg gca gag aag 247
 Glu Glu Gln Ala Lys Arg Leu Glu Glu Glu Glu Ala Ala Ala Glu Lys
 55 60 65
 gag gac cgc ggg cgg ccc tac aca ctg agc gta gcc ctg ccg ggc tcc 295
 Glu Asp Arg Gly Arg Pro Tyr Thr Leu Ser Val Ala Leu Pro Gly Ser
 70 75 80

| | |
|---|------|
| atc ctg gac aat gct cag tcg ccg gag ctt cgc acc tac ttg gcc ggt Ile Leu Asp Asn Ala Gln Ser Pro Glu Leu Arg Thr Tyr Leu Ala Gly 85 90 95 | 343 |
| cag att gcc aga gcc tgt gcc atc ttc tgt gtg gat gag atc gtg gtg Gln Ile Ala Arg Ala Cys Ala Ile Phe Cys Val Asp Glu Ile Val Val 100 105 110 | 391 |
| ttt gat gag gag ggc cag gat gcc aag act gtg gag ggg gaa ttc aca Phe Asp Glu Glu Gly Gln Asp Ala Lys Thr Val Glu Gly Glu Phe Thr 115 120 125 130 | 439 |
| gga gtt ggg aag aag ggg cag gcg tgc gta cag ctg gcc cgg atc ctg Gly Val Gly Lys Lys Gly Gln Ala Cys Val Gln Leu Ala Arg Ile Leu 135 140 145 | 487 |
| cag tac ctg gag tgt cca cag tac ctg agg aag gcg ttc ttc ccc aag Gln Tyr Leu Glu Cys Pro Gln Tyr Leu Arg Lys Ala Phe Phe Pro Lys 150 155 160 | 535 |
| cac cag gat cta cag ttt gca ggg ctc ctg aac ccc ctg gac agc ccc His Gln Asp Leu Gln Phe Ala Gly Leu Leu Asn Pro Leu Asp Ser Pro 165 170 175 | 583 |
| cac cac atg cgt cag gat gag gaa tcc gag ttc cga gag ggc atc gtg His His Met Arg Gln Asp Glu Glu Ser Glu Phe Arg Glu Gly Ile Val 180 185 190 | 631 |
| gtg gat cgg ccc acc cgg cca ggc cac ggc tcc ttt gtc aac tgt ggc Val Asp Arg Pro Thr Arg Pro Gly His Gly Ser Phe Val Asn Cys Gly 195 200 205 210 | 679 |
| atg aaa aag gag gtg aag att gac aag aac ctg gag ccc ggg ctt cgg Met Lys Lys Glu Val Lys Ile Asp Lys Asn Leu Glu Pro Gly Leu Arg 215 220 225 | 727 |
| gtg act gtg cga ctg aac cag cag cag cac cca gac tgc aag acc tac Val Thr Val Arg Leu Asn Gln Gln Gln His Pro Asp Cys Lys Thr Tyr 230 235 240 | 775 |
| cat ggc aaa gtg gta tca tcg cag gac cct cgc acc aaa gct ggt ctc His Gly Lys Val Val Ser Ser Gln Asp Pro Arg Thr Lys Ala Gly Leu 245 250 255 | 823 |
| tac tgg ggc tac acc gtc cga ctg gct tcc tgc ctc agt gct gtg ttt Tyr Trp Gly Tyr Thr Val Arg Leu Ala Ser Cys Leu Ser Ala Val Phe 260 265 270 | 871 |
| gct gag gcc ccc ttc caa gat ggg tat gac ctg acc atc ggg acg tca Ala Glu Ala Pro Phe Gln Asp Gly Tyr Asp Leu Thr Ile Gly Thr Ser 275 280 285 290 | 919 |
| gag cgc ggc tca gat gtg gct tct gcc cag ctt ccc aac ttc agg cat Glu Arg Gly Ser Asp Val Ala Ser Ala Gln Leu Pro Asn Phe Arg His 295 300 305 | 967 |
| gct ctt gtg gtg ttc ggg ggc ctc cag ggt ctg gaa gct gga gcg gat Ala Leu Val Val Phe Gly Gly Leu Gln Gly Leu Glu Ala Gly Ala Asp 310 315 320 | 1015 |
| gct gac ccc aac ctg gag gtg gct gaa ccc agt gtc ctc ttt gac ctg Ala Asp Pro Asn Leu Glu Val Ala Glu Pro Ser Val Leu Phe Asp Leu 325 330 335 | 1063 |

| | |
|--|------|
| tac gtc aat acc tgt cct ggc cag ggt agc cgt acc atc cgc acg gag | 1111 |
| Tyr Val Asn Thr Cys Pro Gly Gln Gly Ser Arg Thr Ile Arg Thr Glu | |
| 340 345 350 | |
| | |
| gaa gcc atc ctc atc tcc ctg gcc gcc ctg cag cct ggc ctc acc cag | 1159 |
| Glu Ala Ile Leu Ile Ser Leu Ala Ala Leu Gln Pro Gly Leu Thr Gln | |
| 355 360 365 370 | |
| | |
| gcg ggt gcc cgg cac acc tga aa gttctaaggg gccgaggaca tcagtgaagc | 1212 |
| Ala Gly Ala Arg His Thr * | |
| 375 | |
| | |
| agcagtga aa ccaggggctc tgcaggtcac ttgggacgga cgccaccaga cttgtctcca | 1272 |
| aaaatcacca cctttaatac tccccggcct gcacacaccc acagtctcac tgggctccac | 1332 |
| cctcacttac tgcccgccgt gatggccttg aggtctgcctg cccgcgccag gatgtttggc | 1392 |
| acaaagagca gccccgaagc ccgctcaatg ctctcgatgg gcaccaggaa gcgctccagt | 1452 |
| gggatggcct catccacagg tgcgttgggc atcacgtagg tgcggagctc aatttgccca | 1512 |
| cctgctgcct ccaggatcag caccttgaag aagtgtgtgg gcactgccac gtggttcttg | 1572 |
| ccgatgacct ggtactttac gtaggatttc ccatcagcct ctgtcctgtg ggcagacca | 1632 |
| ggcacacgtg ggcagggggc ctggatgaac ccaaagccac ctcttccagg cagccttccc | 1692 |
| tgatctgtcc tctaacttct gtcaacctgc aggaccacgc cctcactgtg agacttctgt | 1752 |
| agcctgcctg gctcctcctt gaggtcggaa ctctctccag ggtgggttaac tctttccctc | 1812 |
| tgttttcctt atgccaaca ctgggtcagg cagagtgggc gacaataaac gctgctagga | 1872 |
| gaatcgagcc ttctgaatat tcacattcgt ctgaggggag acttaacgac tgtccatctc | 1932 |
| tccccacaga ggtgagcaac aagtgggcaa ggaccatgac aggtgacatc ccagcaccag | 1992 |
| cacaggtgcc aggacaccgg acgggggctc cccctcagca gagtctctc ccttccacca | 2052 |
| ggccctagga ggcacctgct aatgaaattt gatcagtgcc ccaaccaccg ccttgggccag | 2112 |
| cctatgccga gcccttacca tggaccaggc cctggggaag catgtgacat caaccaagag | 2172 |
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| caggcagatc tagattcaaa ctcccagaaa ggggtggaggg aagtgtcca agcagagcag | 2472 |
| agactgaagg cgggagagcc tgggtgcaccg cggacctgca gggggaaggc gtgagagctc | 2532 |
| ggtgcactgg ggacctgcat ggggaaggcg ggagagctcg gtgcactggg gacctgcatg | 2592 |
| gggaaggcgt gagagctcgg tgcactgggg acctgcatgg ggaaggcggg agagctcggg | 2652 |
| gcacctcgga cctgcagagg gaaggtggga gagcttggtg caccgcagac ctgcaggggg | 2712 |
| aaggcgggag agcttggtgc actgcagacc tgcgggggga aggtgggaga gcttggtgca | 2772 |

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actgcgcagt tgaggagggt gcgcgcttct tttgaaaacc taatgcctga tctgtcgttg 4152
ttgcccata cctccagata ggactgtcta gttgcaggaa aacaagctca gggctccac 4212
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<213> Homo sapiens

<220>
<221> CDS
<222> (294) .. (1229)

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 caatccacac agttcctgac acatcatagg ccttcaatac atactttcca gttgaattgg 120
 aaagaaatgt gttaagtctc agttatgtcg tgatgcaaata gctcacaaaa tatctgttta 180
 gggccatctt ttcatacaaaa gaattgtatc tccgaatact taacatcagc aatctgagta 240
 aataaacttg ctcatacaagg acaacttctt tcttataatt cttgtctgca ggc atg 296
 Met
 1
 tct aat ttt act cat tat gcc tat ctg ctt atg ata gag tca ctg atg 344
 Ser Asn Phe Thr His Tyr Ala Tyr Leu Leu Met Ile Glu Ser Leu Met
 5 10 15
 ttg ggg aaa gtt ccc ccg cat gtc ccc agt cat cat ttc ata ttt cat 392
 Leu Gly Lys Val Pro Pro His Val Pro Ser His His Phe Ile Phe His
 20 25 30
 gat gat ggg agt gcc aga cag aag gga gag agt gat tac aag gtc atc 440
 Asp Asp Gly Ser Ala Arg Gln Lys Gly Glu Ser Asp Tyr Lys Val Ile
 35 40 45
 ata cag cag tgg ttc tca aag agt ggt ccc tgg acc acc agc agc aat 488
 Ile Gln Gln Trp Phe Ser Lys Ser Gly Pro Trp Thr Thr Ser Ser Asn
 50 55 60 65
 gtt acc tgg ggc ttg tta gaa ctg caa caa agc att tct gaa tca gct 536
 Val Thr Trp Gly Leu Leu Glu Leu Gln Gln Ser Ile Ser Glu Ser Ala
 70 75 80
 gtt tta acc att cct cca gga gat tct ggt gca ggc tca aat ttg ata 584
 Val Leu Thr Ile Pro Pro Gly Asp Ser Gly Ala Gly Ser Asn Leu Ile
 85 90 95
 acc atg ttt cta cgt aac aga aaa gaa aca gat ctg tgc agt ggg aga 632
 Thr Met Phe Leu Arg Asn Arg Lys Glu Thr Asp Leu Cys Ser Gly Arg
 100 105 110
 agt aaa gtg aac aga gga tgg aat tct ggc aga tgc aaa caa agg ggc 680
 Ser Lys Val Asn Arg Gly Trp Asn Ser Gly Arg Cys Lys Gln Arg Gly
 115 120 125
 aag act gag cag cct gga gag ccc ttg gaa cat gtg tat gtg act ata 728
 Lys Thr Glu Gln Pro Gly Glu Pro Leu Glu His Val Tyr Val Thr Ile
 130 135 140 145
 aaa cat gct gta gcc ctg gaa tcc cga cat caa aag gga gag ctt cag 776
 Lys His Ala Val Ala Leu Glu Ser Arg His Gln Lys Gly Glu Leu Gln
 150 155 160
 tgc ctg ata aaa atg tgc att cct ctt agc aaa cca ctc caa atg ttc 824
 Cys Leu Ile Lys Met Cys Ile Pro Leu Ser Lys Pro Leu Gln Met Phe
 165 170 175
 ttt tct cca ccc cac tgg gaa gct tgg ctg cag aga gta cag caa ctt 872
 Phe Ser Pro Pro His Trp Glu Ala Trp Leu Gln Arg Val Gln Gln Leu
 180 185 190
 gcg aaa aac aca aga tac ttc aga caa aga ctg cag gaa atg gga ttc 920
 Ala Lys Asn Thr Arg Tyr Phe Arg Gln Arg Leu Gln Glu Met Gly Phe
 195 200 205

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att atc tat ggc aat gag aat gct tct gtt gtt cct ctg ctt ctt tat      968
Ile Ile Tyr Gly Asn Glu Asn Ala Ser Val Val Pro Leu Leu Leu Tyr
210                               215                               220                               225

atg cct ggt aaa gta gcg gct ttt gca agg cat atg cta gag aaa aaa      1016
Met Pro Gly Lys Val Ala Ala Phe Ala Arg His Met Leu Glu Lys Lys
                               230                               235                               240

att gga gtg gtg gtc gtg gga ttt cca gcc act ccc ctc gca gaa gct      1064
Ile Gly Val Val Val Val Gly Phe Pro Ala Thr Pro Leu Ala Glu Ala
                               245                               250                               255

cgg gct cgg ttt tgt gtt tca gcg gca cat acc cgg gag atg tta gac      1112
Arg Ala Arg Phe Cys Val Ser Ala Ala His Thr Arg Glu Met Leu Asp
                               260                               265                               270

acg gtt tta gaa gct ctt gat gaa atg ggt gat ctc ttg caa ctg aaa      1160
Thr Val Leu Glu Ala Leu Asp Glu Met Gly Asp Leu Leu Gln Leu Lys
                               275                               280                               285

tat tcc cgg cac aag aag tca gca cgt cct gag ctc tat gat gag acg      1208
Tyr Ser Arg His Lys Lys Ser Ala Arg Pro Glu Leu Tyr Asp Glu Thr
290                               295                               300                               305

agc ttt gaa ctc gaa gat taa gt ttactgggtcc tgaatgacac ataaagactt      1261
Ser Phe Glu Leu Glu Asp *
                               310

tgcgagaaag acctccctcc ttgcctcaca aggaatataa atggatttct ccccttccct      1321
ca                                                                    1323

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<210> 866
<211> 1035
<212> DNA
<213> Homo sapiens

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<220>
<221> CDS
<222> (571) .. (858)

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ccttaggctc cggtagattg caaacgacct gctttctttc tgatcccggg ctgcgttcgg      120
accctgtcg tatagaaaat cccaagtaag gtacctgcgc tcggcagatc tgagctttct      180
tcttgacac ctaataccca cagtcctcca gacctgtc ggatagtaaa tccaagtaa      240
ggtaccttct gctggaagat ctgagctttc ttcttggaac cctaaaaccc acagtcctcc      300
agtgaaggat ccagtgaagat tttccagggt aacggtcata atcgctact ggtccaacgt      360
tcagaagtaa cacaggcacc tggacaatac acagtagatg tggaaggaca cggttgtaca      420
tttatccagg ccacccttaa gtacaatgtt ctctaccta agaaggcatc tggattttct      480
ctttccttgg aaatagtaaa gaactactct tcgactgctt ttgacctcac agtgacctc      540

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aaatacactg gaattcgcaa taaatccagt      atg gtg gtt ata gat gta aaa      591
                                         Met Val Val Ile Asp Val Lys
                                         1                      5

atg cta tca gga ttt act cca acc atg tca tcc att gaa gag ctt gaa      639
Met Leu Ser Gly Phe Thr Pro Thr Met Ser Ser Ile Glu Glu Leu Glu
      10                      15                      20

aac aag ggc caa gtg atg aag act gaa gtc aag aat gac cat gtt ctt      687
Asn Lys Gly Gln Val Met Lys Thr Glu Val Lys Asn Asp His Val Leu
      25                      30                      35

ttc tac ttg gaa aat ggt ttt ggt cga gca gac agt ttc cct ttt tct      735
Phe Tyr Leu Glu Asn Gly Phe Gly Arg Ala Asp Ser Phe Pro Phe Ser
      40                      45                      50                      55

gtt gag cag agc aac ctt gtg ttc aac att cag cca gcc cca gcc atg      783
Val Glu Gln Ser Asn Leu Val Phe Asn Ile Gln Pro Ala Pro Ala Met
      60                      65                      70

gtc tac gat tac tat gaa aaa gaa gaa tat gcc cta gct ttt tac aac      831
Val Tyr Asp Tyr Tyr Glu Lys Glu Glu Tyr Ala Leu Ala Phe Tyr Asn
      75                      80                      85

atc gac agt agt tca gtt tcc gag tga gacaa agcaattact agaagagttg      883
Ile Asp Ser Ser Ser Val Ser Glu *
      90                      95

gagaagcatt tcttgtaaca aactgattct tctgtatcaa acctggaaaa aaatcatgaa      943

ccatctgaca tcgtgaacag tctgcagtgg gctatggttt cttgtcaagt cttatttcct      1003

tatcatccca ttaaattgttg tcattttgca aa      1035

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<210> 867
 <211> 3182
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (97)..(2307)

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ccggctcctg tcagtgcggt gactgcgctg ggaaac      atg gcg acc gag gga atg      114
                                         Met Ala Thr Glu Gly Met
                                         1                      5

atc ctt act aac cac gac cat caa atc cgt gtc gga gtc ctt aca gtg      162
Ile Leu Thr Asn His Asp His Gln Ile Arg Val Gly Val Leu Thr Val
      10                      15                      20

agt gat agt tgc ttc agg aat ctt gca gaa gac cgc agt ggg ata aat      210
Ser Asp Ser Cys Phe Arg Asn Leu Ala Glu Asp Arg Ser Gly Ile Asn
      25                      30                      35

ctc aaa gat ctc gta caa gat cct tct ttg ttg ggt ggg act ata tca      258
Leu Lys Asp Leu Val Gln Asp Pro Ser Leu Leu Gly Gly Thr Ile Ser
      40                      45                      50

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| | |
|---|------|
| gca tac aag ata gta cca gat gaa ata gaa gaa atc aag gaa acc ctg | 306 |
| Ala Tyr Lys Ile Val Pro Asp Glu Ile Glu Glu Ile Lys Glu Thr Leu | |
| 55 60 65 70 | |
| ata gat tgg tgt gat gaa aag gaa ctt aat ttg ata tta aca act gga | 354 |
| Ile Asp Trp Cys Asp Glu Lys Glu Leu Asn Leu Ile Leu Thr Thr Gly | |
| 75 80 85 | |
| gga aca gga ttt gca cca cga gat gtc act cca gag gcc aca aaa gaa | 402 |
| Gly Thr Gly Phe Ala Pro Arg Asp Val Thr Pro Glu Ala Thr Lys Glu | |
| 90 95 100 | |
| gta ata gaa cgg gaa gca cca ggg atg gcc ctg gca atg ctg atg gga | 450 |
| Val Ile Glu Arg Glu Ala Pro Gly Met Ala Leu Ala Met Leu Met Gly | |
| 105 110 115 | |
| tca ctt aat gtt aca cct ctg ggc atg ctc tct agg cct gta tgt gga | 498 |
| Ser Leu Asn Val Thr Pro Leu Gly Met Leu Ser Arg Pro Val Cys Gly | |
| 120 125 130 | |
| atc aga ggg aaa acg ctc ata att aac ctg cca ggt agc aag aaa gga | 546 |
| Ile Arg Gly Lys Thr Leu Ile Ile Asn Leu Pro Gly Ser Lys Lys Gly | |
| 135 140 145 150 | |
| tct cag gaa tgc ttt caa ttc ata ctg cca gct cta cct cat gcc att | 594 |
| Ser Gln Glu Cys Phe Gln Phe Ile Leu Pro Ala Leu Pro His Ala Ile | |
| 155 160 165 | |
| gac ctt tta cgt gat gcc att gta aaa gta aag gag gtg cat gat gaa | 642 |
| Asp Leu Leu Arg Asp Ala Ile Val Lys Val Lys Glu Val His Asp Glu | |
| 170 175 180 | |
| ctt gaa gat ttg cct tcc cca cct ccc cct ctt tcc cct cct cct act | 690 |
| Leu Glu Asp Leu Pro Ser Pro Pro Pro Pro Leu Ser Pro Pro Pro Thr | |
| 185 190 195 | |
| acc agc ccc cat aaa cag aca gaa gac aaa gga gtt caa tgt gag gaa | 738 |
| Thr Ser Pro His Lys Gln Thr Glu Asp Lys Gly Val Gln Cys Glu Glu | |
| 200 205 210 | |
| gag gaa gaa gag aag aaa gac agt ggt gtt gct tca aca gaa gat agt | 786 |
| Glu Glu Glu Glu Lys Lys Asp Ser Gly Val Ala Ser Thr Glu Asp Ser | |
| 215 220 225 230 | |
| tcc tca tca cat ata act gca gca gcc att gct gcc aag att cca gac | 834 |
| Ser Ser Ser His Ile Thr Ala Ala Ala Ile Ala Ala Lys Ile Pro Asp | |
| 235 240 245 | |
| tcc atc att tct cgt ggt gtt cag gtg ctc cca cga gac aca gcc tcc | 882 |
| Ser Ile Ile Ser Arg Gly Val Gln Val Leu Pro Arg Asp Thr Ala Ser | |
| 250 255 260 | |
| ctc agc act act cct tca gaa tcg cct cgt gct cag gct aca tct cgc | 930 |
| Leu Ser Thr Thr Pro Ser Glu Ser Pro Arg Ala Gln Ala Thr Ser Arg | |
| 265 270 275 | |
| ctc tct aca gct tcc tgc cca aca cca aaa gtc cag tcc agg tgc agc | 978 |
| Leu Ser Thr Ala Ser Cys Pro Thr Pro Lys Val Gln Ser Arg Cys Ser | |
| 280 285 290 | |
| agc aag gag aac att ctc aga gcc agt cac agt gct gtc gat atc acc | 1026 |
| Ser Lys Glu Asn Ile Leu Arg Ala Ser His Ser Ala Val Asp Ile Thr | |
| 295 300 305 310 | |

| | |
|---|------|
| aag gtg gct aga aga cat cgc atg tct cct ttt cct ctg aca tct atg | 1074 |
| Lys Val Ala Arg Arg His Arg Met Ser Pro Phe Pro Leu Thr Ser Met | |
| 315 320 325 | |
| gac aaa gcc ttt atc aca gtc ctg gag atg act ccg gtg ctt ggg aca | 1122 |
| Asp Lys Ala Phe Ile Thr Val Leu Glu Met Thr Pro Val Leu Gly Thr | |
| 330 335 340 | |
| gaa atc atc aat tac cga gat gga atg ggg cga gtc ctt gct caa gat | 1170 |
| Glu Ile Ile Asn Tyr Arg Asp Gly Met Gly Arg Val Leu Ala Gln Asp | |
| 345 350 355 | |
| gta tat gca aaa gac aat tta ccc ccc ttc cca gca tca gta aaa gat | 1218 |
| Val Tyr Ala Lys Asp Asn Leu Pro Pro Phe Pro Ala Ser Val Lys Asp | |
| 360 365 370 | |
| ggc tat gct gtc cga gct gct gat ggc cca gga gat cgt ttc atc att | 1266 |
| Gly Tyr Ala Val Arg Ala Ala Asp Gly Pro Gly Asp Arg Phe Ile Ile | |
| 375 380 385 390 | |
| ggg gaa tcc caa gct ggt gaa cag cca act cag aca gta atg cca gga | 1314 |
| Gly Glu Ser Gln Ala Gly Glu Gln Pro Thr Gln Thr Val Met Pro Gly | |
| 395 400 405 | |
| caa gtc atg cgg gtt aca aca ggt gct cca ata ccc tgc ggt gct gat | 1362 |
| Gln Val Met Arg Val Thr Thr Gly Ala Pro Ile Pro Cys Gly Ala Asp | |
| 410 415 420 | |
| gca gta gta caa gtg gaa gat acc gaa ctt atc agg gaa tca gat gat | 1410 |
| Ala Val Val Gln Val Glu Asp Thr Glu Leu Ile Arg Glu Ser Asp Asp | |
| 425 430 435 | |
| ggc act gaa gaa ctt gaa gtg cga att ctg gtg caa gct cgg cca ggc | 1458 |
| Gly Thr Glu Glu Leu Glu Val Arg Ile Leu Val Gln Ala Arg Pro Gly | |
| 440 445 450 | |
| caa gat atc aga ccc atc ggc cat gac att aaa aga ggg gaa tgt gtt | 1506 |
| Gln Asp Ile Arg Pro Ile Gly His Asp Ile Lys Arg Gly Glu Cys Val | |
| 455 460 465 470 | |
| ttg gcc aaa gga acc cac atg ggc ccc tca gag att ggt ctt ctg gca | 1554 |
| Leu Ala Lys Gly Thr His Met Gly Pro Ser Glu Ile Gly Leu Leu Ala | |
| 475 480 485 | |
| act gta ggt gtc aca gag gtt gaa gtt aat aag ttt cca gtg gtt gca | 1602 |
| Thr Val Gly Val Thr Glu Val Glu Val Asn Lys Phe Pro Val Val Ala | |
| 490 495 500 | |
| gtc atg tca aca ggg aat gag ctg cta aat cct gaa gat gac ctc tta | 1650 |
| Val Met Ser Thr Gly Asn Glu Leu Leu Asn Pro Glu Asp Asp Leu Leu | |
| 505 510 515 | |
| cca ggg aag att cga gac agc aat cgt tca act ctt cta gca aca att | 1698 |
| Pro Gly Lys Ile Arg Asp Ser Asn Arg Ser Thr Leu Leu Ala Thr Ile | |
| 520 525 530 | |
| cag gaa cat ggt tac ccc acg atc aac ttg ggt att gta gga gac aac | 1746 |
| Gln Glu His Gly Tyr Pro Thr Ile Asn Leu Gly Ile Val Gly Asp Asn | |
| 535 540 545 550 | |
| cca gat gac tta ctc aat gcc ttg aat gag ggt atc agt cgt gct gat | 1794 |
| Pro Asp Asp Leu Leu Asn Ala Leu Asn Glu Gly Ile Ser Arg Ala Asp | |
| 555 560 565 | |

| | |
|---|------|
| gtc atc atc aca tca ggg ggt gta tcc atg ggg gaa aag gac tat ctc Val Ile Ile Thr Ser Gly Gly Val Ser Met Gly Glu Lys Asp Tyr Leu 570 575 580 | 1842 |
| aag cag gtg ctg gac att gat ctt cat gct cag atc cat ttt ggc agg Lys Gln Val Leu Asp Ile Asp Leu His Ala Gln Ile His Phe Gly Arg 585 590 595 | 1890 |
| gtt ttt atg aaa cca ggc ttg cca aca aca ttt gca act ttg gat att Val Phe Met Lys Pro Gly Leu Pro Thr Thr Phe Ala Thr Leu Asp Ile 600 605 610 | 1938 |
| gat ggt gta aga aaa ata atc ttt gca cta cct ggg aat cct gta tcg Asp Gly Val Arg Lys Ile Ile Phe Ala Leu Pro Gly Asn Pro Val Ser 615 620 625 630 | 1986 |
| gct gtg gtc acc tgc aat ctc ttt gtt gtg cct gca ctg agg aaa atg Ala Val Val Thr Cys Asn Leu Phe Val Val Pro Ala Leu Arg Lys Met 635 640 645 | 2034 |
| cag ggc atc ttg gat cct cgg cca acc atc atc aaa gca agg tta tca Gln Gly Ile Leu Asp Pro Arg Pro Thr Ile Ile Lys Ala Arg Leu Ser 650 655 660 | 2082 |
| tgt gat gta aaa ctt gat cct cgt cca gaa tac cat cgg tgt ata cta Cys Asp Val Lys Leu Asp Pro Arg Pro Glu Tyr His Arg Cys Ile Leu 665 670 675 | 2130 |
| act tgg cat cac caa gaa cca cta cct tgg gca cag agt aca ggt aat Thr Trp His His Gln Glu Pro Leu Pro Trp Ala Gln Ser Thr Gly Asn 680 685 690 | 2178 |
| caa atg agc agc cgt ctg atg agc atg cgc agt gcc aat gga ttg ttg Gln Met Ser Ser Arg Leu Met Ser Met Arg Ser Ala Asn Gly Leu Leu 695 700 705 710 | 2226 |
| atg cta cct cca aag aca gaa cag tac gtg gag ctc cac aaa ggc gag Met Leu Pro Pro Lys Thr Glu Gln Tyr Val Glu Leu His Lys Gly Glu 715 720 725 | 2274 |
| gtg gtg gat gtc atg gtc att gga cgg cta tga tgggtcacc agcaggagaa Val Val Asp Val Met Val Ile Gly Arg Leu * | 2325 |
| 730 735 | |
| agctttgatg catgtccaca tatcattgac tgtatcctgt aatatgcaac ggcacagcta | 2385 |
| gttttcccga tttggataaa agttgatctg tatagtcaac atcttgaact atatttcaaa | 2445 |
| tgaatttaaa tatcttttaa agaaaaaac acctaaaaat aaatcttaac agaaaattct | 2505 |
| gttctgatta tatcaaggca aatttttccct ttcttgcaaa ttgctttgtg tgttcaatgc | 2565 |
| taggtctgat agcgatagct tttagtagac agcggtaggt gcctgcagaa cttgtgtttt | 2625 |
| tctcatcttt aaaatacaac tacttatgct cttaaataca ggctgtctgc ttatttatac | 2685 |
| tagcgtaggc aacacttgga tttcccttct tagtatgctt cataactgct ttacagagag | 2745 |
| cttttgcttg ttctttctca tgtatctcgt gtttatgtgc acagtgccaa aagaagactg | 2805 |
| actgggtgga ggctctgcct tgcctcaaga accatccct gcagagcatc caggagaggt | 2865 |
| tctcgcccca atagcctcac ggcacagtac tcttgggcag taactggaca ctttttattt | 2925 |

gaagaaacaa actgaagaaa aaatgcttcc ttaagtgtg acagcctttt taaccaatac 2985
 atttaaaatt gtacagaaca aaaaaataaa atcaaagact gatcttgtac agatattagt 3045
 gttaccagca ttcattgtga aatcaagagc aaagacaaaa taatgttaaa caattctgta 3105
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 ctcatagtac ctgaggatcg ccgacctgca gagcccgcag ctgcaccacg gagagtttca 120
 gaggcagag atg gcg ggc cga gag gcc ctg tca ctg ggc aca gag gcc 168
 Met Ala Gly Arg Glu Ala Leu Ser Leu Gly Thr Glu Ala
 1 5 10
 gag ctg ccg aac agc ctg ccg ggc gat gac cag gat gag tgc ctt ctc 216
 Glu Leu Pro Asn Ser Leu Pro Gly Asp Asp Gln Asp Glu Cys Leu Leu
 15 20 25
 ctc ccg gga gag ctg tgc cag cac ctt tgc atc aat act gtg ggt tct 264
 Leu Pro Gly Glu Leu Cys Gln His Leu Cys Ile Asn Thr Val Gly Ser
 30 35 40 45
 tac cac tgt gcc tgc ttt cct ggc ttc tca ctg cag gac gat ggc cgc 312
 Tyr His Cys Ala Cys Phe Pro Gly Phe Ser Leu Gln Asp Asp Gly Arg
 50 55 60
 act tgc cgc cca gag ggt cac cct cca cag ccg gaa gcc cca cag gag 360
 Thr Cys Arg Pro Glu Gly His Pro Pro Gln Pro Glu Ala Pro Gln Glu
 65 70 75
 cct gca ctg aag tca gaa ttt tcc cag gtg gcc tct aac acc atc ccg 408
 Pro Ala Leu Lys Ser Glu Phe Ser Gln Val Ala Ser Asn Thr Ile Pro
 80 85 90
 ctg cca ctg ccg cag ccc aat acc tgc aaa gac aat gga ccc tgc aag 456
 Leu Pro Leu Pro Gln Pro Asn Thr Cys Lys Asp Asn Gly Pro Cys Lys
 95 100 105
 cag gtg tgc agc act gtt ggg ggc tca gcc ata tgc tcc tgt ttt ccc 504
 Gln Val Cys Ser Thr Val Gly Gly Ser Ala Ile Cys Ser Cys Phe Pro
 110 115 120 125
 ggc tat gcc atc atg gcg gat ggc gtg tcc tgt gaa gac caa gac gag 552
 Gly Tyr Ala Ile Met Ala Asp Gly Val Ser Cys Glu Asp Gln Asp Glu
 130 135 140

| | |
|---|------|
| tgc ctg atg ggt gct cac gat tgt agc cgg cga cag ttc tgt gtg aac | 600 |
| Cys Leu Met Gly Ala His Asp Cys Ser Arg Arg Gln Phe Cys Val Asn | |
| 145 150 155 | |
| acc ctg gga tcc ttc tac tgt gtc aac cac aca gtg ctc tgt gcc gat | 648 |
| Thr Leu Gly Ser Phe Tyr Cys Val Asn His Thr Val Leu Cys Ala Asp | |
| 160 165 170 | |
| ggc tat atc ctc aat gcg cac agg aag tgc gtg gac atc aac gag tgt | 696 |
| Gly Tyr Ile Leu Asn Ala His Arg Lys Cys Val Asp Ile Asn Glu Cys | |
| 175 180 185 | |
| gtg acg gac ctg cac acg tgc agc cgg ggc gag cac tgt gtg aac aca | 744 |
| Val Thr Asp Leu His Thr Cys Ser Arg Gly Glu His Cys Val Asn Thr | |
| 190 195 200 205 | |
| ctg ggc tcc ttc cac tgc tac aag gca ctc acc tgt gag cca ggc tat | 792 |
| Leu Gly Ser Phe His Cys Tyr Lys Ala Leu Thr Cys Glu Pro Gly Tyr | |
| 210 215 220 | |
| gcc ctc aag gat ggc gag tgc gaa gac gtg gat gag tgt gcg atg ggc | 840 |
| Ala Leu Lys Asp Gly Glu Cys Glu Asp Val Asp Glu Cys Ala Met Gly | |
| 225 230 235 | |
| acg cac acc tgc cag ccg ggc ttc ttg tgc cag aac acc aag ggc tcc | 888 |
| Thr His Thr Cys Gln Pro Gly Phe Leu Cys Gln Asn Thr Lys Gly Ser | |
| 240 245 250 | |
| ttc tac tgc cag gcc agg cag cgc tgc atg gat ggc ttc ctg cag gat | 936 |
| Phe Tyr Cys Gln Ala Arg Gln Arg Cys Met Asp Gly Phe Leu Gln Asp | |
| 255 260 265 | |
| cct gaa ggc aac tgt gtg gac atc aac gag tgc acg tca ctg tcc gag | 984 |
| Pro Glu Gly Asn Cys Val Asp Ile Asn Glu Cys Thr Ser Leu Ser Glu | |
| 270 275 280 285 | |
| cca tgt cgg cca ggc ttc agc tgc atc aac acg gtg ggc tcc tac acg | 1032 |
| Pro Cys Arg Pro Gly Phe Ser Cys Ile Asn Thr Val Gly Ser Tyr Thr | |
| 290 295 300 | |
| tgc cag agg aac ccg ctg atc tgc gcg cgc ggc tac cac gcc agc gat | 1080 |
| Cys Gln Arg Asn Pro Leu Ile Cys Ala Arg Gly Tyr His Ala Ser Asp | |
| 305 310 315 | |
| gat ggg acc aag tgt gtg gac gtg aat gag tgt gag aca ggt gtg cac | 1128 |
| Asp Gly Thr Lys Cys Val Asp Val Asn Glu Cys Glu Thr Gly Val His | |
| 320 325 330 | |
| cgc tgc ggt gag ggc caa gtg tgc cac aac ctc cct ggc tcc tac cgc | 1176 |
| Arg Cys Gly Glu Gly Gln Val Cys His Asn Leu Pro Gly Ser Tyr Arg | |
| 335 340 345 | |
| tgt gac tgc aaa gcc ggc ttt cag cgg gat gcc ttc ggc cgg ggc tgc | 1224 |
| Cys Asp Cys Lys Ala Gly Phe Gln Arg Asp Ala Phe Gly Arg Gly Cys | |
| 350 355 360 365 | |
| atc gac gtg aat gag tgc tgg gcc tcg cca ggc cgc ctg tgc cag cac | 1272 |
| Ile Asp Val Asn Glu Cys Trp Ala Ser Pro Gly Arg Leu Cys Gln His | |
| 370 375 380 | |
| acg tgt gag aac aca ctc ggc tcc tac cgc tgt tcc tgc gcc tcc ggg | 1320 |
| Thr Cys Glu Asn Thr Leu Gly Ser Tyr Arg Cys Ser Cys Ala Ser Gly | |
| 385 390 395 | |

| | |
|---|------|
| ttc ctg cta gca gcg gac ggc aag cgc tgt gaa gac gtg aat gag tgt | 1368 |
| Phe Leu Leu Ala Ala Asp Gly Lys Arg Cys Glu Asp Val Asn Glu Cys | |
| 400 405 410 | |
| gag gcc cag cgc tgc agc cag gag tgt gcc aac atc tat ggc tcc tac | 1416 |
| Glu Ala Gln Arg Cys Ser Gln Glu Cys Ala Asn Ile Tyr Gly Ser Tyr | |
| 415 420 425 | |
| cag tgc tac tgc cgc cag ggc tac cag ctg gct gag gat ggg cac acc | 1464 |
| Gln Cys Tyr Cys Arg Gln Gly Tyr Gln Leu Ala Glu Asp Gly His Thr | |
| 430 435 440 445 | |
| tgc aca gac atc gac gag tgt gct caa ggc gcc ggc atc ctc tgc acc | 1512 |
| Cys Thr Asp Ile Asp Glu Cys Ala Gln Gly Ala Gly Ile Leu Cys Thr | |
| 450 455 460 | |
| ttc cgc tgt ctc aac gtg cca ggg agc tac cag tgt gca tgc cct gag | 1560 |
| Phe Arg Cys Leu Asn Val Pro Gly Ser Tyr Gln Cys Ala Cys Pro Glu | |
| 465 470 475 | |
| cag ggc tac acc atg acg gcc aac ggg agg tcc tgc aag gac gtg gat | 1608 |
| Gln Gly Tyr Thr Met Thr Ala Asn Gly Arg Ser Cys Lys Asp Val Asp | |
| 480 485 490 | |
| gag tgt gca ctg ggt acc cac aac tgt tcc gag gct gag acc tgc cac | 1656 |
| Glu Cys Ala Leu Gly Thr His Asn Cys Ser Glu Ala Glu Thr Cys His | |
| 495 500 505 | |
| aac atc cag ggt agc ttc cgc tgc ctg cgc ttc gag tgt cct ccc aac | 1704 |
| Asn Ile Gln Gly Ser Phe Arg Cys Leu Arg Phe Glu Cys Pro Pro Asn | |
| 510 515 520 525 | |
| tat gtc caa gtc tcc aaa acg aag tgc gag cgc acc acg tgc cat gac | 1752 |
| Tyr Val Gln Val Ser Lys Thr Lys Cys Glu Arg Thr Thr Cys His Asp | |
| 530 535 540 | |
| ttc ctg gag tgc cag aac tcg cca gcg cgc atc acg cac tac cag ctc | 1800 |
| Phe Leu Glu Cys Gln Asn Ser Pro Ala Arg Ile Thr His Tyr Gln Leu | |
| 545 550 555 | |
| aac ttc cag acg ggc ctc ctg gtg cct gcg cat atc ttc cgc att ggc | 1848 |
| Asn Phe Gln Thr Gly Leu Leu Val Pro Ala His Ile Phe Arg Ile Gly | |
| 560 565 570 | |
| ccc gcg cca gcc ttc aca ggg gac acc atc gcc ctg aac atc atc aag | 1896 |
| Pro Ala Pro Ala Phe Thr Gly Asp Thr Ile Ala Leu Asn Ile Ile Lys | |
| 575 580 585 | |
| ggc aat gag gag ggc tac ttt ggc acg cgc agg ctc aat gcc tac acg | 1944 |
| Gly Asn Glu Glu Gly Tyr Phe Gly Thr Arg Arg Leu Asn Ala Tyr Thr | |
| 590 595 600 605 | |
| ggt gtg gtc tac ctg cag cgg gcc gtg ctg gag ccc cgg gac ttt gcc | 1992 |
| Gly Val Val Tyr Leu Gln Arg Ala Val Leu Glu Pro Arg Asp Phe Ala | |
| 610 615 620 | |
| ctg gat gtg gag atg aag ctc tgg agg cag ggc tcc gtc acc acc ttc | 2040 |
| Leu Asp Val Glu Met Lys Leu Trp Arg Gln Gly Ser Val Thr Thr Phe | |
| 625 630 635 | |
| ctg gcc aag atg cac atc ttc ttc acc acc ttt gcc ctg tga ggtgcc | 2089 |
| Leu Ala Lys Met His Ile Phe Phe Thr Thr Phe Ala Leu * | |
| 640 645 650 | |

gcacgggcca cctgcgggtg tggcgcagcc cagggctcac actgcgtggg agggactggg 2149
tcactattgt ggtttttact ataactttgt aaattaactt aattttgctg acttgactcc 2209
tgtggcttct ggacccctcc tctgccccgc aggaggaagt tccacggcag gtggtgcgtt 2269
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ctcctctgga tgaccctgcc ccaaagttga cattccattt catgttccac tgtgattaat 2449
tcttttcttt tttaaaaaat catttttaaag ttttttgttt aattataaag tagtacatgt 2509
acattataaa aaaaaaagtt caactagtat gaaagggtta taaagtaaca gaggaaaaca 2569
aaaaaaaaaa aaa 2582

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<222> (130) .. (1941)

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ctcatagtag ctgaggatcg ccgacctgca gagccccgag ctgcaccacg gagagtttca 120
gaggcagag atg gcg ggc cga gag gcc ctg tca ctg ggc aca gag gcc 168
Met Ala Gly Arg Glu Ala Leu Ser Leu Gly Thr Glu Ala
1 5 10
gag ctg ccg aac agc ctg ccg ggc gat gac cag gat gag tgc ctt ctc 216
Glu Leu Pro Asn Ser Leu Pro Gly Asp Asp Gln Asp Glu Cys Leu Leu
15 20 25
ctc ccg gga gag ctg tgc cag cac ctt tgc atc aat act gtg ggt tct 264
Leu Pro Gly Glu Leu Cys Gln His Leu Cys Ile Asn Thr Val Gly Ser
30 35 40 45
tac cac tgt gcc tgc ttt cct ggc ttc tca ctg cag gac gat ggc cgc 312
Tyr His Cys Ala Cys Phe Pro Gly Phe Ser Leu Gln Asp Asp Gly Arg
50 55 60
act tgc cgc cca gag ggt cac cct cca cag ccg gaa gcc cca cag gag 360
Thr Cys Arg Pro Glu Gly His Pro Pro Gln Pro Glu Ala Pro Gln Glu
65 70 75
cct gca ctg aag tca gaa ttt tcc cag gtg gcc tct aac acc atc ccg 408
Pro Ala Leu Lys Ser Glu Phe Ser Gln Val Ala Ser Asn Thr Ile Pro
80 85 90
ctg cca ctg ccg cag ccc aat acc tgc aaa gac aat gga ccc tgc aag 456
Leu Pro Leu Pro Gln Pro Asn Thr Cys Lys Asp Asn Gly Pro Cys Lys
95 100 105
cag gtg tgc agc act gtt ggg ggc tca gcc ata tgc tcc tgt ttt ccc 504

| | |
|---|------|
| Gln Val Cys Ser Thr Val Gly Gly Ser Ala Ile Cys Ser Cys Phe Pro | |
| 110 115 120 125 | |
| ggc tat gcc atc atg gcg gat ggc gtg tcc tgt gaa gac atc aac gag | 552 |
| Gly Tyr Ala Ile Met Ala Asp Gly Val Ser Cys Glu Asp Ile Asn Glu | |
| 130 135 140 | |
| tgt gtg acg gac ctg cac acg tgc agc cgg ggc gag cac tgt gtg aac | 600 |
| Cys Val Thr Asp Leu His Thr Cys Ser Arg Gly Glu His Cys Val Asn | |
| 145 150 155 | |
| aca ctg ggc tcc ttc cac tgc tac aag gca ctc acc tgt gag cca ggc | 648 |
| Thr Leu Gly Ser Phe His Cys Tyr Lys Ala Leu Thr Cys Glu Pro Gly | |
| 160 165 170 | |
| tat gcc ctc aag gat ggc gag tgc gaa gac gtg gat gag tgt gcg atg | 696 |
| Tyr Ala Leu Lys Asp Gly Glu Cys Glu Asp Val Asp Glu Cys Ala Met | |
| 175 180 185 | |
| ggc acg cac acc tgc cag ccg ggc ttc ttg tgc cag aac acc aag ggc | 744 |
| Gly Thr His Thr Cys Gln Pro Gly Phe Leu Cys Gln Asn Thr Lys Gly | |
| 190 195 200 205 | |
| tcc ttc tac tgc cag gcc agg cag cgc tgc atg gat ggc ttc ctg cag | 792 |
| Ser Phe Tyr Cys Gln Ala Arg Gln Arg Cys Met Asp Gly Phe Leu Gln | |
| 210 215 220 | |
| gat cct gaa ggc aac tgt gtg gac atc aac gag tgc acg tca ctg tcc | 840 |
| Asp Pro Glu Gly Asn Cys Val Asp Ile Asn Glu Cys Thr Ser Leu Ser | |
| 225 230 235 | |
| gag cca tgt cgg cca ggc ttc agc tgc atc aac acg gtg ggc tcc tac | 888 |
| Glu Pro Cys Arg Pro Gly Phe Ser Cys Ile Asn Thr Val Gly Ser Tyr | |
| 240 245 250 | |
| acg tgc cag agg aac ccg ctg atc tgc gcg cgc ggc tac cac gcc agc | 936 |
| Thr Cys Gln Arg Asn Pro Leu Ile Cys Ala Arg Gly Tyr His Ala Ser | |
| 255 260 265 | |
| gat gat ggg acc aag tgt gtg gac gtg aat gag tgt gag aca ggt gtg | 984 |
| Asp Asp Gly Thr Lys Cys Val Asp Val Asn Glu Cys Glu Thr Gly Val | |
| 270 275 280 285 | |
| cac cgc tgc ggt gag ggc caa gtg tgc cac aac ctc cct ggc tcc tac | 1032 |
| His Arg Cys Gly Glu Gly Gln Val Cys His Asn Leu Pro Gly Ser Tyr | |
| 290 295 300 | |
| cgc tgt gac tgc aaa gcc ggc ttt cag cgg gat gcc ttc ggc cgg ggc | 1080 |
| Arg Cys Asp Cys Lys Ala Gly Phe Gln Arg Asp Ala Phe Gly Arg Gly | |
| 305 310 315 | |
| tgc atc gac gtg aat gag tgc tgg gcc tcg cca ggc cgc ctg tgc cag | 1128 |
| Cys Ile Asp Val Asn Glu Cys Trp Ala Ser Pro Gly Arg Leu Cys Gln | |
| 320 325 330 | |
| cac acg tgt gag aac aca ctc ggc tcc tac cgc tgt tcc tgc gcc tcc | 1176 |
| His Thr Cys Glu Asn Thr Leu Gly Ser Tyr Arg Cys Ser Cys Ala Ser | |
| 335 340 345 | |
| ggg ttc ctg cta gca gcg gac ggc aag cgc tgt gaa gac gtg aat gag | 1224 |
| Gly Phe Leu Leu Ala Ala Asp Gly Lys Arg Cys Glu Asp Val Asn Glu | |
| 350 355 360 365 | |
| tgt gag gcc cag cgc tgc agc cag gag tgt gcc aac atc tat ggc tcc | 1272 |